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Age, Sex, and Size Composition of Pacific Herring From Coastal Spawning Sites in the Arctic-Yukon-Kuskokwim Region, 1988

by

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ABSTRACT

Pacific herring *Clupea pallasii* were sampled from seven of the eight commercial fishing districts within the Arctic-Yukon-Kuskokwim portion of the Bering Sea during the 1988 spring spawning migration. Samples were collected from variable-mesh gillnets operated by Alaska Department of Fish and Game personnel and from commercial purse seine, beach seine, and gillnet harvests. Within each district, samples were grouped by gear type, location, and fishing period or sampling week. Between 6 May and 16 June, 7,292 herring were examined for age, sex, and size information. Overall, age-9 (1979 year class) herring dominated the 1988 spawning population: an estimated 26.1% of the spawning biomass and 22.2% of the spawning population by number. Recruited herring, ages 3, 4, and 5, accounted for an estimated 6.1% of the total biomass and 12.0% by number. Substantial recruitment of herring to the spawning biomass last occurred in 1982 and 1983 as a result of strong 1977 and 1978 year classes. In 1988 the AYK herring biomass estimate was 64,756 tons, and the commercial harvest was 7,937 tons, for an overall exploitation rate of 12.3%. The mean length within each age class progressively decreased from Security Cove northward to Port Clarence. Overall, sex ratios remained nearly equal with males slightly outnumbering females in most districts.

KEY WORDS: Pacific herring, *Clupea pallasii*, Bering Sea, age, sex, size, population, biomass

INTRODUCTION

The purpose of this study was to estimate the age, sex, and size composition of the spawning biomass of Pacific herring *Clupea pallasii* in the Arctic-Yukon-Kuskokwim (AYK) Region of the Bering Sea. Similar studies have been conducted annually by the Alaska Department of Fish and Game (ADF&G) since 1976 (McBride et al. 1981; McBride and Whitmore 1981; Fried et al. 1982a, 1982b, 1983a, 1983b, 1984; Lebida et al. 1985a, 1986; Lebida 1986; Lebida and Sandone 1987). Development of fishery management plans for Bering Sea herring stocks rely on these data.

The coastal waters of Alaska from Cape Newenham to Cape Prince of Wales compose the study area (Figures 1, 2). The eight regulatory commercial fishing districts within this area are Security Cove, Goodnews Bay, Cape Avinof, Nelson Island, Nunivak Island, Cape Romanzof, Norton Sound, and Port Clarence. Norton Sound is further subdivided into seven subdistricts. These districts and subdistricts are specifically identified and described by ADF&G (1988). The commercial harvest in the AYK Region was taken by gillnets, except in Norton Sound and Port Clarence. A small portion of the Norton Sound harvest was taken by beach seine. The majority of the Port Clarence harvest was taken by purse seine.

METHODS

Sampling Techniques

Samples were taken from the following commercial fishing districts: Security Cove, Goodnews Bay, Cape Avinof, Nelson Island, Cape Romanzof, Norton Sound (St. Michael, Unalakleet, Elim, and Cape Denbigh Subdistricts), and Port Clarence. Gear type was categorized as either non-selective or selective for a discrete group of age classes. Non-selective gear was assumed to sample all age classes in the population in proportion to their abundance. Variable-mesh gillnet, beach seine, and purse seine composed the non-selective category; standard-mesh gillnet composed the selective category. Variable-mesh gillnet sets were made by ADF&G personnel. Commercial beach seine, purse seine, and gillnet sets were made by commercial fishermen. Age, sex, size, and gonadal condition data was gathered from herring catches taken by each gear type.

Data collection methods were similar to those described by Barton and Steinhoff (1980). We attempted to sample at least 210 herring from each commercial fishing period and from each gear type. Similar sampling goals were established for test fishing for each weekly sample period. Fried (1984) described the sample size methods used. Sampled fish were measured from tip of the snout to the hypural plate to the nearest millimeter, weighed to the nearest gram, and aged by counting scale annuli viewed with a microfiche reader.

Biomass Estimation

Estimated herring biomass, spawn timing, and distribution was determined by aerial surveys flown throughout the season in each district. Aerial survey procedures followed those outlined by Lebida and Whitmore (1985). In districts where survey conditions were poor, biomass was estimated using partial aerial surveys, pre-season projections, and age composition.

Age class composition of the mature herring return was grouped in three ways: total age composition (which was calculated by combining commercial catch with escapement for each age class), commercial harvest age composition, and escapement age composition (which was estimated from non-selective gear). For each group, numbers of herring were estimated by dividing the total tonnage of each age class by the average fish weight in that age class. Test fish samples were not collected at Cape Avinof (which was established as a new superexclusive registration area in 1988), and at Nunivak Island; therefore, the age class composition of Nelson Island herring was used for these two areas.

RESULTS AND DISCUSSION

ADF&G personnel examined 7,292 Pacific herring between 6 May and 16 June, (Appendix A.1–A.22). These data suggest (nonstatistical comparisons = NSC) that older-aged herring (age 5 and older) arrived and spawned earlier in the season than younger-aged (age 4 and younger) herring (Appendix A.8–A.21). This temporal spawning segregation trend was also apparent in former years (McBride et al. 1981; Fried et al. 1982a, 1982b, 1983b, 1984).

In 1988 the AYK herring biomass estimate was 64,756 tons for the surveyed portions of the commercial fishing districts. The commercial harvest was 7,937 tons for an overall exploitation rate of 12.3% (Table 1). Biomass was distributed among the districts as follows: 7.6% in Security Cove, 6.9% in Goodnews Bay, 6.3% in Cape Avinof, 11.0% in Nelson Island, 4.3% in Nunivak Island, 10.2% in Cape Romanzof, 52.4% in Norton Sound, and 1.2% in Port Clarence (Figure 3).

Overall, age 9 was the dominant age class of herring that returned to the region. This age class comprised 26.1% of the biomass and 22.2% of the population (Tables 1, 2; Figures 4, 5, 6). Age-9 and older herring accounted for 54.5% of the biomass and 44.6% of the population. Recruits, ages -3, -4, and -5 herring, represented 6.1% of the biomass and 12.0% of the population. Substantial recruitment last occurred in 1982 and 1983 and was associated with the 1977 and 1978 year classes. In 1988, these herring comprised the 10 and 11 age classes which represented 26.8% of the biomass and 21.2% of the population. Ages-7 and -9 herring represented 48.8% of the AYK commercial harvest biomass.

At Security Cove, age-9 herring was the dominant age class. This age class represented 26.6% of the biomass and 23.1% of the population (Tables 1, 2; Figures 4, 5, 6). Age-9 and older herring accounted for 58.4% of the biomass and 48.1% of the population. Recruit herring composed 8.8% of the biomass

and 17.2% of the population in this district (Figure 7). Thirty-three percent of the commercial catch biomass in Security Cove was age-9 herring.

Age 9 was the dominant age class in the Goodnews Bay herring biomass (25.4%); both age 5 (17.4%) and age 9 (19.0%) dominated the herring population (Tables 1, 2; Figures 4, 5, 6). Age-9 and older herring accounted for 49.4% of the biomass and 36.4% of the population. Recruits represented 15.4% of the biomass and 30.2% of the population (Figure 7). Ages-9 and -10 herring, combined, accounted for 52.3% of the commercial harvest biomass in this district.

Age-9 herring dominated the Cape Avinof return for both biomass and population based on Nelson Island samples. This age class represented 25.9% of the biomass and 20.7% of the population (Tables 1, 2; Figures 4, 5, 6). Fifty-nine percent of the biomass and 44.9% of the population was composed of age-9 and older herring. Younger herring, ages 3, 4, and 5, represented 11.6% of the biomass and 24.0% of the population in this district (Figure 7). Age-9 herring comprised 37.9% of the commercial catch biomass.

At Nelson Island the strongest age class in biomass and numbers differed. The predominant age class in biomass was age 11 (22.2%); the predominant age class in numbers of fish was age 9 (17.1%) (Tables 1, 2; Figures 4, 5, 6). Over half of the herring were composed of age-9 and older fish. These fish made up 65.8% of the biomass and 51.1% of the population. Recruits represented 11.0% of the biomass and 23.1% of the population (Figure 7). Age-11 herring composed 32.1% of the Nelson Island commercial harvest biomass.

Based on Nelson Island samples, age-9 and -10 herring dominated the herring return to Nunivak Island (Tables 1, 2; Figures 4, 5, 6). These age classes accounted for 48.4% of the biomass and 36.7% of the population of returning herring. Age-9 and older herring represented 58.0% of the biomass and 43.3% of the population in this district. Recruits represented 12.6% of the biomass and 25.7% of the population (Figure 7).

At Cape Romanzof 23.3% of the biomass and 20.1% of the population was represented by age-9 herring (Tables 1, 2; Figures 4, 5, 6). Age-9 and older fish accounted for 54.2% of biomass and 44.7% of the population. Recruits formed 5.9% of the biomass and 10.6% of the population in this district (Figure 7). Age-9 and -10 herring made up 47.8% of the commercial harvest biomass.

Age-9 herring was the dominant age class in the Norton Sound District (Tables 1, 2; Figures 4, 5, 6). This age class comprised 28.4% of the biomass and 24.9% of the population. Age-9 and older herring made up 52.2% of the biomass and 44.5% of the population. Recruits contributed 1.9% to the biomass and 3.4% to the population (Figure 7). Age-7 and -9 herring represented 55.6% of the commercial harvest biomass.

Age 6 was the predominant herring age class in Port Clarence (Tables 1, 2; Figures 4, 5, 6). This age class accounted for 37.7% of the biomass and 42.3% of the population. Herring age 9 and older

accounted for 24.6% of the biomass and 16.6% of the population. Recruits represented 14.8% of the biomass and 21.5% of the population (Figure 7). Age-6 herring accounted for 30.9% of the commercial harvest biomass at Port Clarence.

Throughout the AYK Region, trends in mean age class sizes generally paralleled those noted in previous years (Lebida et al. 1985a, 1986; Lebida and Sandone 1987). The mean length within an age class decreased (NSC) moving from the southern to the more northern districts (Figure 8). In addition, the mean length within an age class differed (NSC) among samples taken by different gear types within Norton Sound and Port Clarence (Appendices A.7, A.8, A.9, A.10, A.11). The commercial gillnet harvest tended (NSC) to harvest larger herring within an age class than did the beach and purse seine harvests.

Overall, sex ratios remained fairly equal, with males slightly outnumbering females in most districts (Appendices A.1-A.21). The male:female ratios for non-selective gear were as follows: Security Cove = 0.9:1, Goodnews Bay = 1.3:1, Nelson Island = 1.1:1, Cape Romanzof = 1.1:1, Norton Sound = 1.3:1, and Port Clarence = 1.1:1. The overall ratio for non-selective gear types was 1.1:1 compared to 0.96:1 for selective gear.

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Table 1. Age composition of Pacific herring spawning biomass for the total run, commercial harvest and escapement for commercial fishing districts within the Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

| Age | Security Cove | | Goodnews Bay | | Cape Avinof | | Nelson Island | | Nunivak Island | | Cape Romanzof | | Norton Sound | | Port Clarence | | Arctic-Yukon-Kuskokwim | |
|--------------------|---------------|-------|--------------|-------|-------------|-------|---------------|-------|----------------|-------|---------------|-------|--------------|--------|---------------|------|------------------------|--------|
| | % by weight | tons | % by weight | tons | % by weight | tons | % by weight | tons | % by weight | tons | % by weight | tons | % by weight | tons | % by weight | tons | % by weight | tons |
| Total Run | | | | | | | | | | | | | | | | | | |
| 3 | 0.0 | 0 | 0.0 | 0 | 0.1 | 6 | 0.1 | 8 | 0.2 | 5 | 0.1 | 6 | 0.0 | 10 | 0.0 | 0 | 0.1 | 35 |
| 4 | 2.0 | 97 | 5.5 | 247 | 4.4 | 182 | 4.8 | 329 | 4.8 | 135 | 1.4 | 92 | 0.2 | 76 | 1.1 | 9 | 1.8 | 1,167 |
| 5 | 8.8 | 336 | 9.9 | 444 | 7.1 | 290 | 6.3 | 453 | 7.6 | 214 | 4.4 | 269 | 1.7 | 592 | 13.7 | 108 | 4.2 | 2,723 |
| 6 | 3.6 | 176 | 5.3 | 237 | 5.5 | 224 | 5.0 | 357 | 5.8 | 162 | 9.5 | 629 | 15.4 | 5,217 | 37.7 | 298 | 11.3 | 7,300 |
| 7 | 16.1 | 792 | 13.6 | 608 | 12.3 | 507 | 11.7 | 840 | 12.7 | 355 | 17.6 | 1,163 | 18.2 | 6,189 | 18.3 | 129 | 16.3 | 10,583 |
| 8 | 13.0 | 640 | 16.3 | 726 | 11.5 | 474 | 6.4 | 457 | 10.9 | 305 | 12.8 | 845 | 12.2 | 4,143 | 6.6 | 52 | 11.8 | 7,644 |
| 9 | 26.6 | 1,307 | 25.4 | 1,139 | 25.9 | 1,066 | 20.2 | 1,445 | 24.8 | 695 | 23.3 | 1,535 | 28.4 | 9,629 | 11.9 | 94 | 26.1 | 16,910 |
| 10 | 23.0 | 1,129 | 16.5 | 739 | 23.6 | 971 | 20.4 | 1,458 | 23.6 | 659 | 18.9 | 1,250 | 16.6 | 5,629 | 7.1 | 56 | 18.4 | 11,991 |
| 11 | 6.3 | 306 | 5.6 | 252 | 7.8 | 319 | 22.2 | 1,590 | 7.9 | 220 | 10.2 | 676 | 6.1 | 2,061 | 2.8 | 22 | 8.4 | 5,463 |
| 12 | 2.2 | 106 | 1.4 | 63 | 1.2 | 50 | 2.0 | 146 | 1.2 | 34 | 1.1 | 72 | 0.9 | 292 | 2.8 | 22 | 1.2 | 785 |
| 13+ | 0.3 | 15 | 0.5 | 21 | 0.5 | 19 | 1.0 | 69 | 0.5 | 14 | 0.7 | 43 | 0.2 | 66 | 0.0 | 0 | 0.4 | 247 |
| Total | 100 | 4,906 | 100 | 4,478 | 100 | 4,106 | 100 | 7,152 | 100 | 2,798 | 100 | 6,600 | 100 | 33,924 | 100 | 790 | 100 | 64,756 |
| Commercial Harvest | | | | | | | | | | | | | | | | | | |
| 3 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 |
| 4 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0 | 0 | 0.0 | 0 | 0.0 | 0 | 1.2 | 1 | 0.0 | 1 |
| 5 | 0.3 | 1 | 0.4 | 2 | 0.6 | 2 | 0.6 | 5 | 0 | 0 | 1.4 | 16 | 0.6 | 29 | 9.9 | 8 | 0.8 | 63 |
| 6 | 3.7 | 12 | 2.3 | 11 | 1.7 | 6 | 1.7 | 15 | 0 | 0 | 5.5 | 62 | 6.9 | 323 | 30.9 | 25 | 5.7 | 454 |
| 7 | 13.3 | 43 | 15.4 | 74 | 8.6 | 30 | 7.0 | 64 | 0 | 0 | 15.5 | 174 | 29.5 | 1,379 | 14.8 | 12 | 22.4 | 1,776 |
| 8 | 20.7 | 87 | 18.7 | 90 | 18.7 | 65 | 5.9 | 54 | 0 | 0 | 15.4 | 172 | 18.3 | 855 | 6.6 | 7 | 16.5 | 1,310 |
| 9 | 33.0 | 107 | 27.2 | 131 | 37.9 | 132 | 22.1 | 201 | 0 | 0 | 26.1 | 292 | 26.1 | 1,219 | 13.6 | 11 | 26.4 | 2,093 |
| 10 | 21.0 | 66 | 25.1 | 121 | 24.7 | 86 | 27.2 | 247 | 0 | 0 | 21.7 | 243 | 14.0 | 656 | 13.6 | 11 | 18.0 | 1,432 |
| 11 | 6.6 | 22 | 9.8 | 47 | 6.6 | 23 | 32.1 | 292 | 0 | 0 | 12.9 | 144 | 4.4 | 204 | 4.9 | 4 | 9.3 | 736 |
| 12 | 0.9 | 3 | 0.6 | 3 | 1.1 | 4 | 1.7 | 15 | 0 | 0 | 1.5 | 17 | 0.0 | 0 | 2.5 | 2 | 0.6 | 44 |
| 13+ | 0.3 | 1 | 0.6 | 3 | 0.0 | 0 | 1.8 | 16 | 0 | 0 | 0.0 | 0 | 0.2 | 8 | 0.0 | 0 | 0.4 | 28 |
| Total | 100 | 324 | 100 | 482 | 100 | 348 | 100 | 909 | 0 | 0 | 100 | 1,120 | 100 | 4,673 | 100 | 81 | 100 | 7,837 |
| Escapement | | | | | | | | | | | | | | | | | | |
| 3 | 0.0 | 0 | 0.0 | 0 | 0.2 | 6 | 0.1 | 8 | 0.2 | 5 | 0.1 | 6 | 0.0 | 10 | 0.0 | 0 | 0.1 | 35 |
| 4 | 2.1 | 97 | 6.2 | 247 | 4.8 | 182 | 5.3 | 329 | 4.8 | 135 | 1.7 | 92 | 0.3 | 76 | 1.1 | 8 | 2.1 | 1,166 |
| 5 | 7.3 | 336 | 11.1 | 442 | 7.7 | 288 | 7.2 | 448 | 7.6 | 214 | 5.0 | 272 | 1.9 | 563 | 14.0 | 99 | 4.7 | 2,862 |
| 6 | 3.6 | 164 | 5.7 | 226 | 5.8 | 218 | 5.5 | 342 | 5.8 | 162 | 10.3 | 567 | 16.7 | 4,894 | 36.6 | 273 | 12.0 | 6,843 |
| 7 | 16.3 | 749 | 13.4 | 534 | 12.7 | 476 | 12.4 | 776 | 12.7 | 355 | 18.0 | 989 | 16.4 | 4,810 | 16.5 | 117 | 15.5 | 8,803 |
| 8 | 12.5 | 572 | 16.0 | 638 | 10.9 | 409 | 6.5 | 404 | 10.9 | 305 | 12.3 | 673 | 11.2 | 3,266 | 6.4 | 45 | 11.1 | 6,334 |
| 9 | 26.2 | 1,200 | 25.2 | 1,009 | 24.8 | 934 | 19.9 | 1,244 | 24.8 | 695 | 22.7 | 1,243 | 26.7 | 8,410 | 11.7 | 83 | 26.1 | 14,818 |
| 10 | 23.2 | 1,061 | 15.5 | 618 | 23.5 | 885 | 19.4 | 1,212 | 23.6 | 659 | 18.4 | 1,007 | 17.0 | 4,973 | 6.4 | 45 | 18.4 | 10,460 |
| 11 | 6.2 | 286 | 5.1 | 205 | 7.9 | 296 | 20.8 | 1,296 | 7.9 | 220 | 9.7 | 532 | 6.4 | 1,677 | 2.4 | 17 | 8.3 | 4,731 |
| 12 | 2.2 | 103 | 1.5 | 60 | 1.2 | 46 | 2.1 | 131 | 1.2 | 34 | 1.0 | 56 | 1.0 | 292 | 2.8 | 20 | 1.3 | 742 |
| 13+ | 0.3 | 14 | 0.5 | 19 | 0.5 | 19 | 0.9 | 54 | 0.5 | 14 | 0.8 | 43 | 0.2 | 66 | 0.0 | 0 | 0.4 | 229 |
| Total | 100 | 4,562 | 100 | 3,966 | 100 | 3,759 | 100 | 6,246 | 100 | 2,798 | 100 | 5,480 | 100 | 29,259 | 100 | 707 | 100 | 56,820 |

Table 2. Age composition of Pacific herring spawning populations expressed in percent by number for commercial fishing districts within the Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

| Age | Security Cove | Goodnews Bay | Cape Avinof | Nelson Island | Nunivak Island | Cape Romanzof | Norton Sound | Port Clarence | Arctic-Yukon- Kuskokwim Total |
|-------|------------------|-----------------|----------------|------------------|-------------------|------------------|-----------------|------------------|-------------------------------------|
| 3 | 0.0 | 0.0 | 0.3 | 0.2 | 0.4 | 0.3 | 0.1 | 0.0 | 0.2 |
| 4 | 4.7 | 12.8 | 11.0 | 11.5 | 11.8 | 3.3 | 0.5 | 1.9 | 4.5 |
| 5 | 12.5 | 17.4 | 12.7 | 11.4 | 13.5 | 7.0 | 2.8 | 19.6 | 7.3 |
| 6 | 4.7 | 8.8 | 7.6 | 7.0 | 8.0 | 12.8 | 20.1 | 42.3 | 14.8 |
| 7 | 17.9 | 13.6 | 13.3 | 13.0 | 13.5 | 19.5 | 19.9 | 14.7 | 17.6 |
| 8 | 12.1 | 13.3 | 10.1 | 5.8 | 9.4 | 12.4 | 12.0 | 5.0 | 11.0 |
| 9 | 23.1 | 19.0 | 20.7 | 17.1 | 19.5 | 20.1 | 24.9 | 8.3 | 22.2 |
| 10 | 18.2 | 12.1 | 17.6 | 15.6 | 17.2 | 15.5 | 13.8 | 4.8 | 14.8 |
| 11 | 4.8 | 4.0 | 5.5 | 16.2 | 5.4 | 8.0 | 5.1 | 1.6 | 6.6 |
| 12 | 1.7 | 1.0 | 0.8 | 1.5 | 0.8 | 0.7 | 0.6 | 1.9 | 0.9 |
| 13+ | 0.3 | 0.3 | 0.3 | 0.7 | 0.4 | 0.4 | 0.1 | 0.0 | 0.3 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

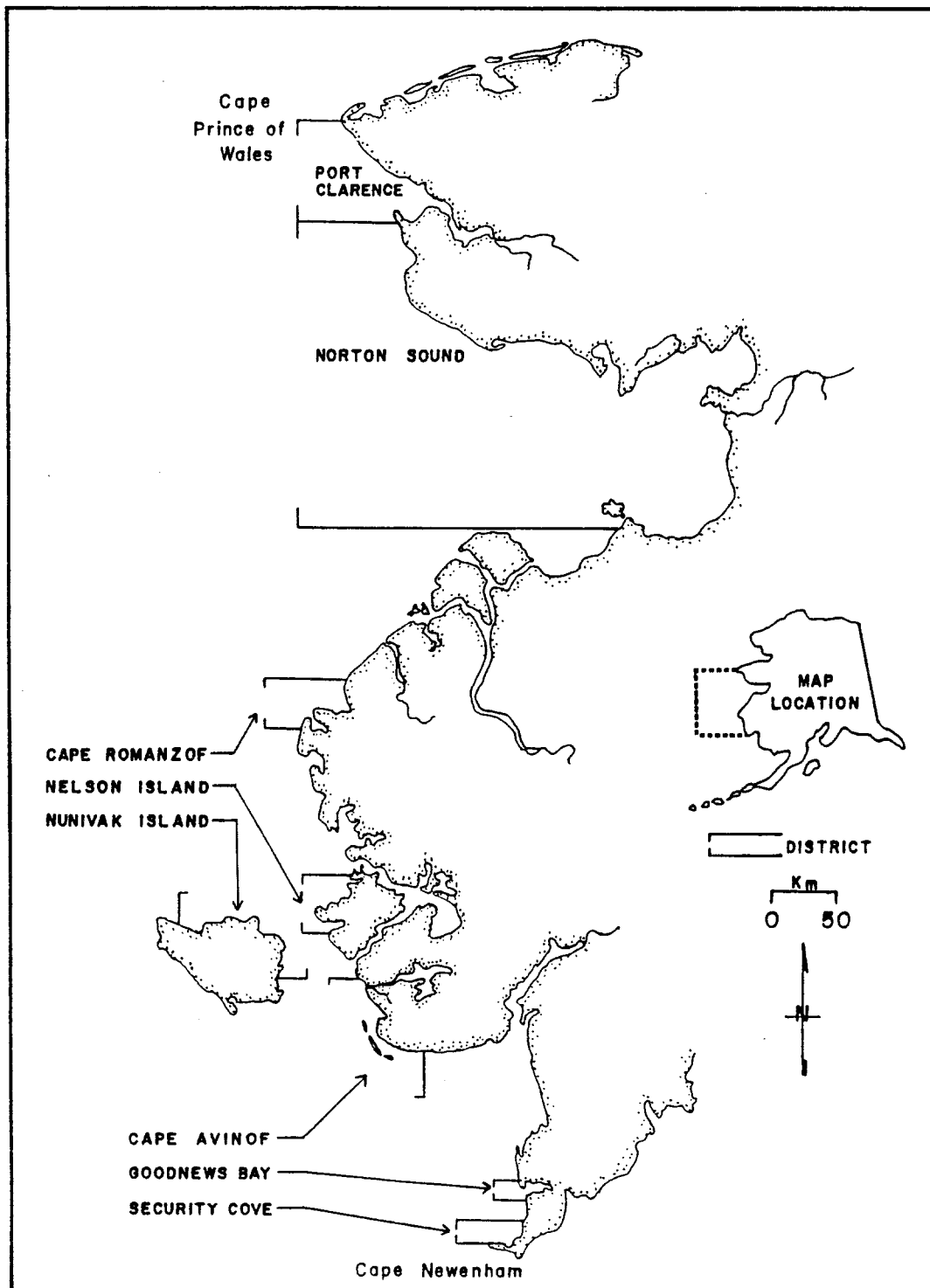


Figure 1. Commercial herring fishing districts within the Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

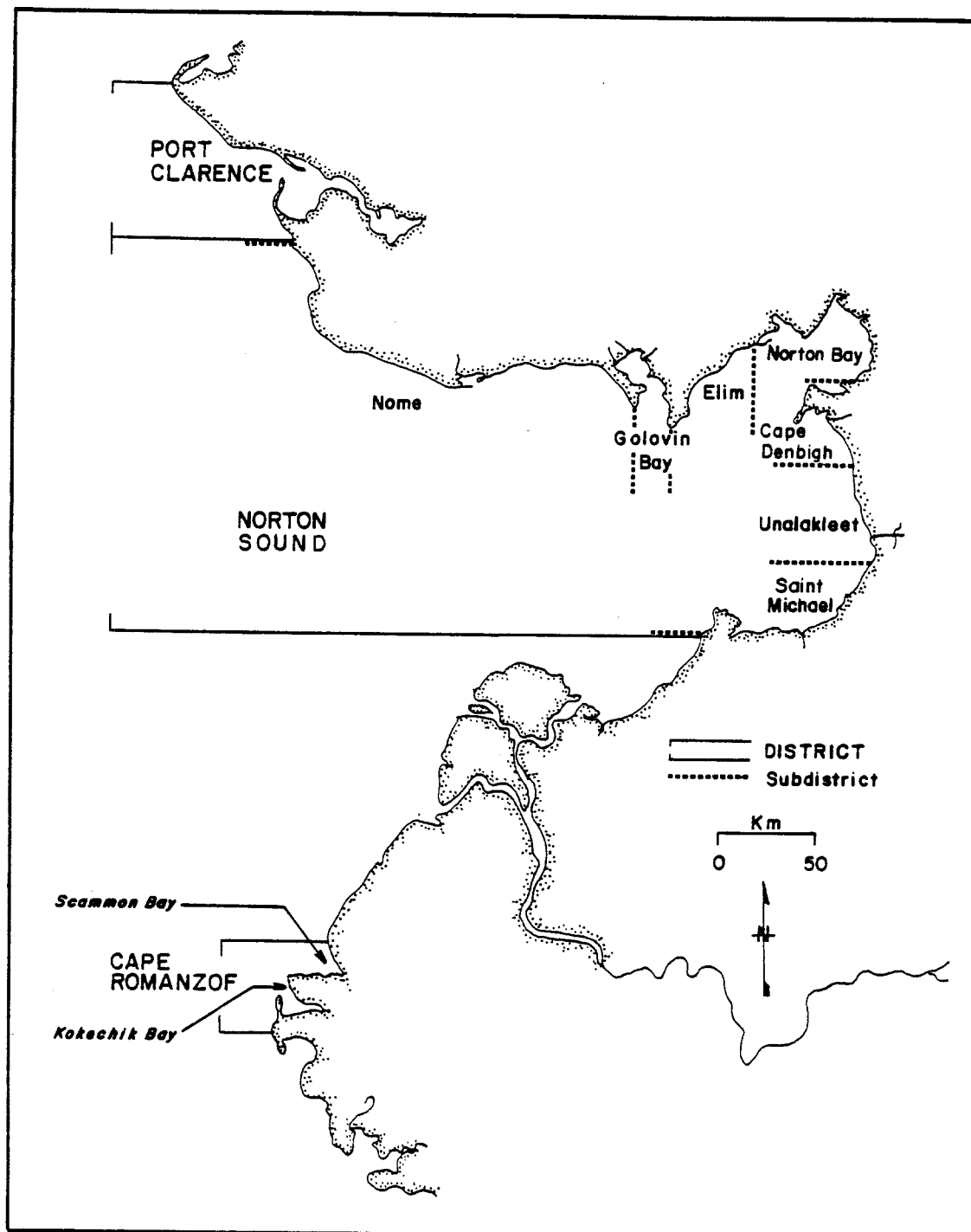


Figure 2. Commercial herring fishing districts and subdistricts of Norton Sound and Cape Romanzof, Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

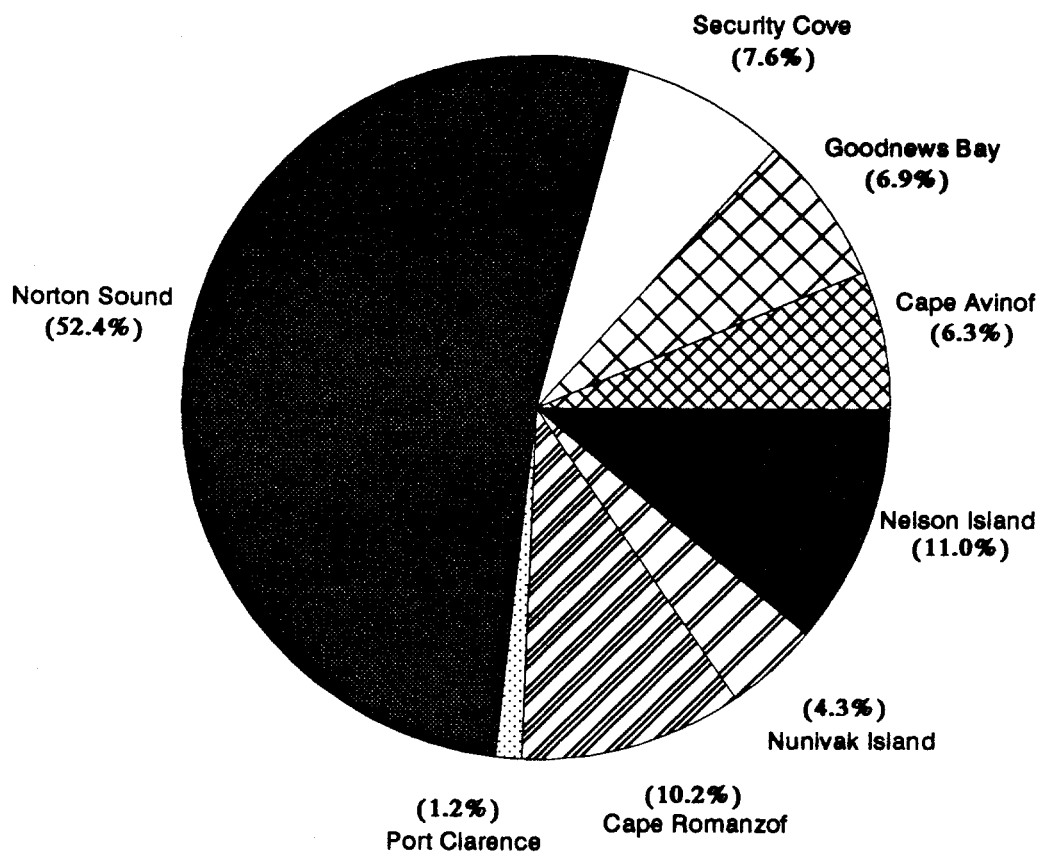


Figure 3. Pacific herring spawning biomass distribution by commercial fishing district, Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

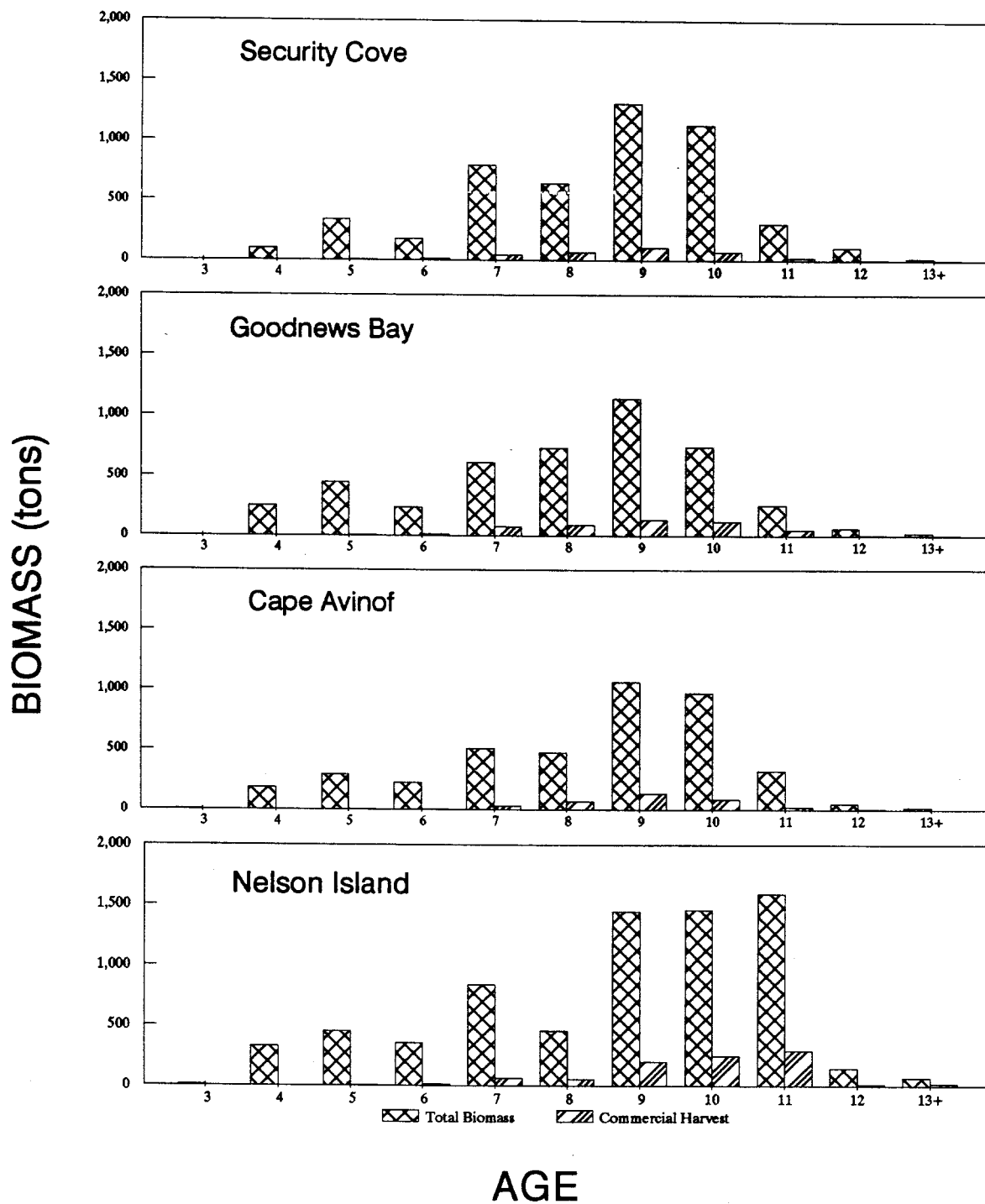


Figure 4. Age composition of Pacific herring by total biomass and commercial harvest for the Security Cove, Goodnews Bay, Cape Avinof, and Nelson Island commercial fishing districts within the Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

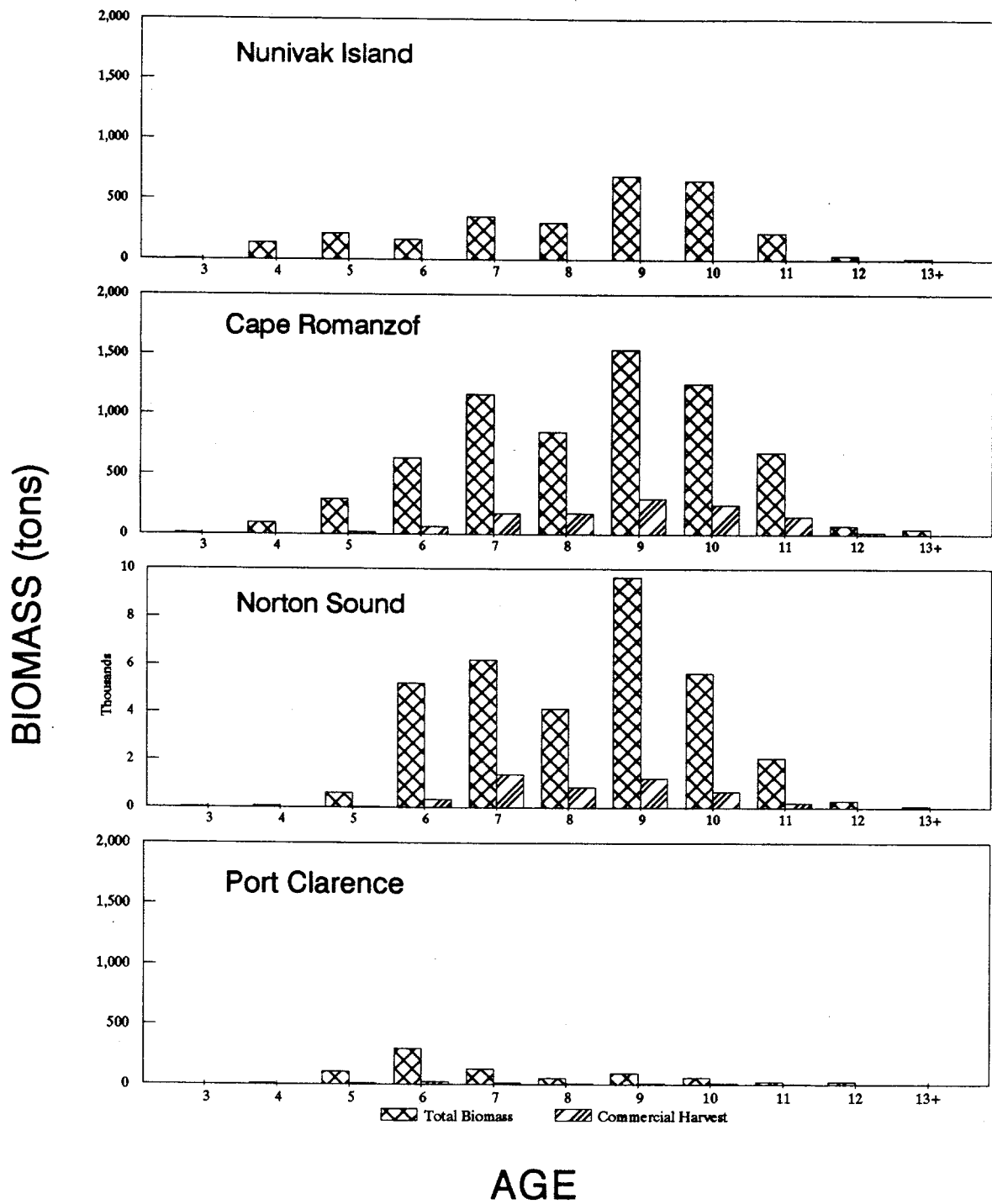


Figure 5. Age composition of Pacific herring by total biomass and commercial harvest for the Nunivak Island, Cape Romanzof, Norton Sound, and Port Clarence commercial fishing districts within the Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

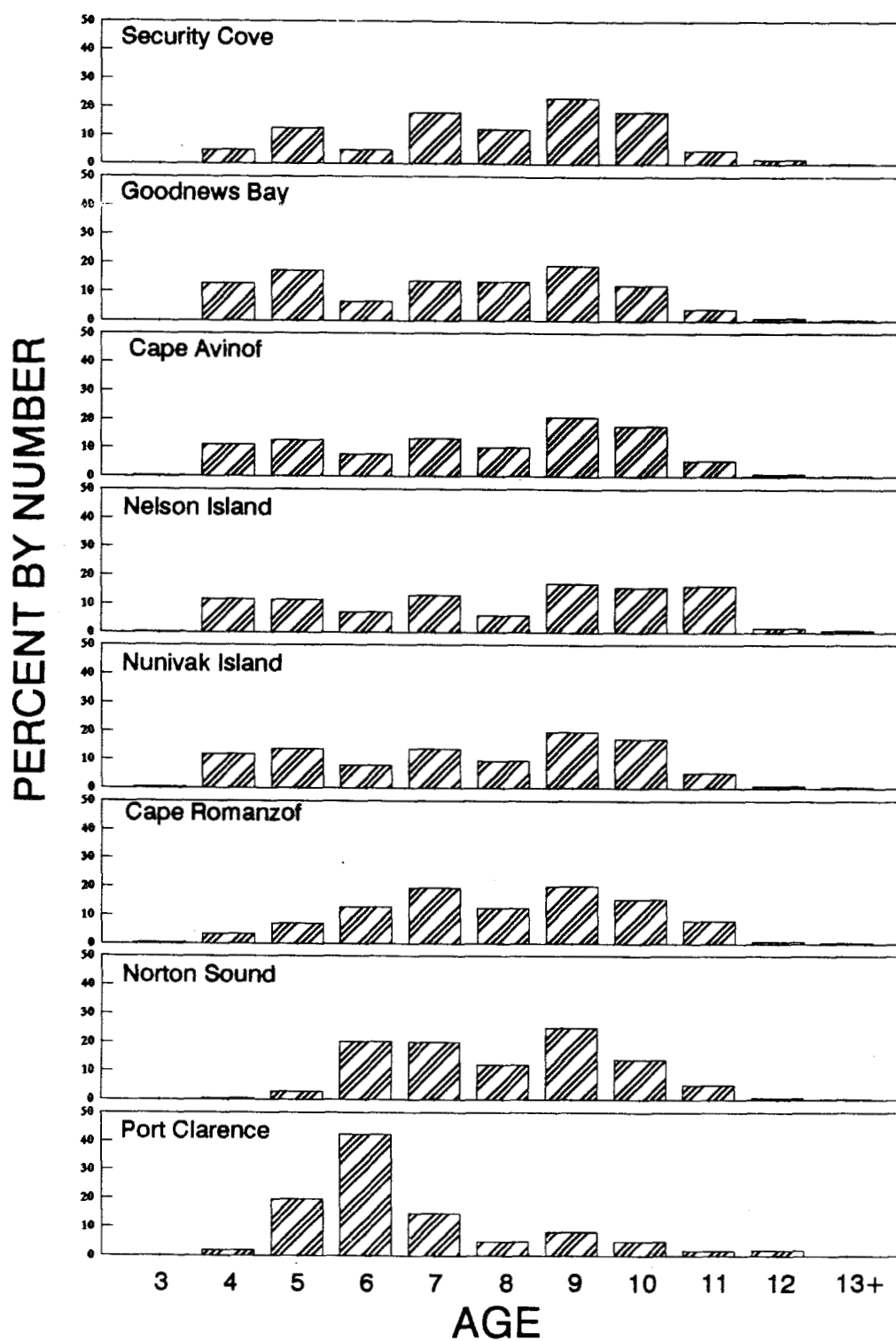


Figure 6. Age composition of Pacific herring spawning populations for commercial fishing districts within the Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

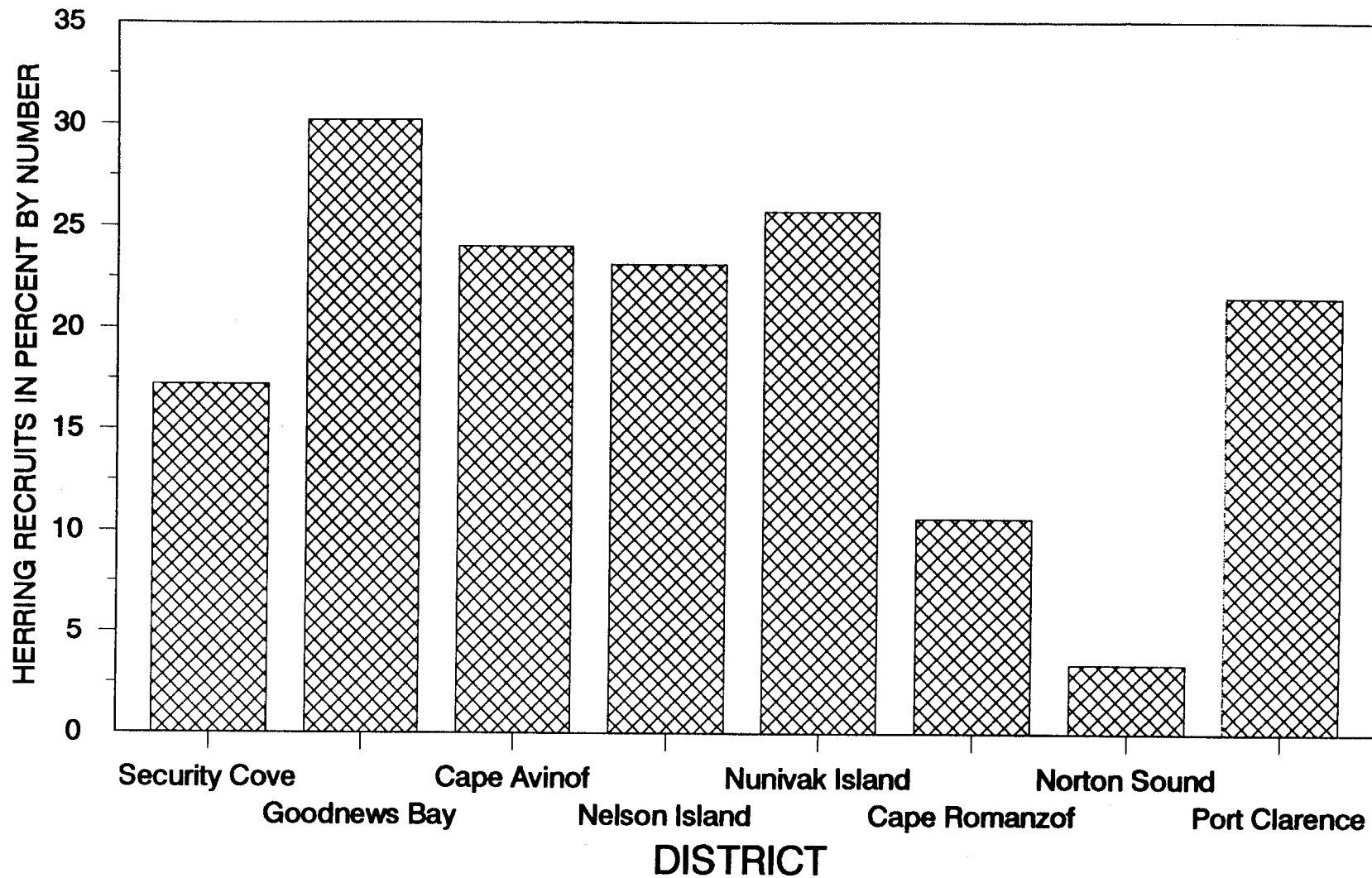


Figure 7. Pacific herring recruits (ages 3, 4, and 5) for commercial fishing districts within the Arctic-Yukon-Kuskokwim Region, Alaska, 1988.

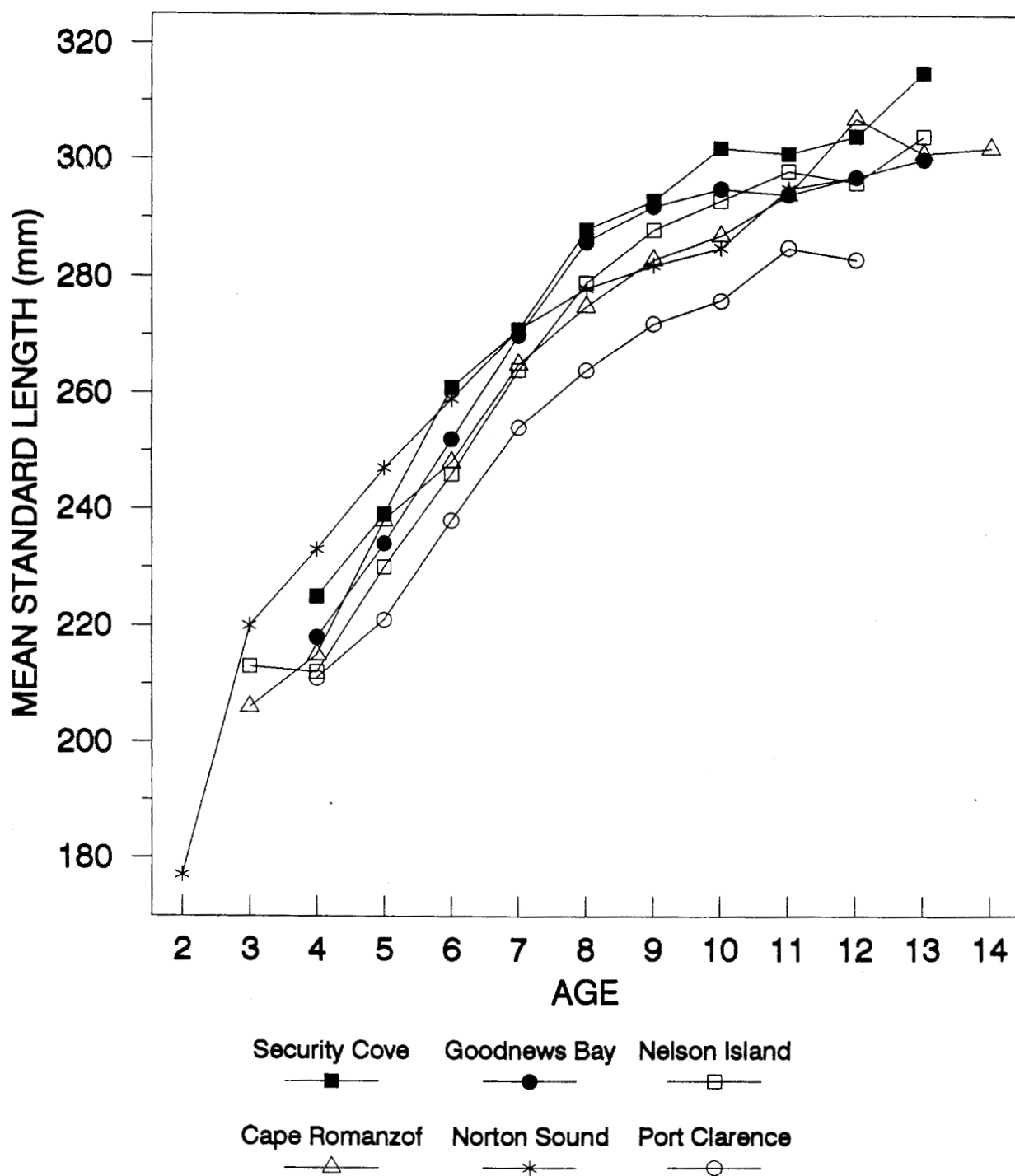


Figure 8. Mean standard length of sampled Pacific herring by age class and commercial fishing district, Arctic-Yukon-Kuskowim Region, Alaska, 1988.

Appendix A.1. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, Security Cove District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-------------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 19 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 0 | 1 | 0 | 1 | 0.6 | 376 | | 1 | 294 | | 1 |
| | 6 | 1 | 8 | 0 | 9 | 5.3 | 324 | 50.4 | 9 | 284 | 11.7 | 9 |
| | 7 | 15 | 12 | 0 | 27 | 15.8 | 325 | 28.6 | 27 | 285 | 9.8 | 27 |
| | 8 | 21 | 22 | 0 | 43 | 25.1 | 349 | 44.8 | 43 | 296 | 24.2 | 43 |
| | 9 | 23 | 29 | 0 | 52 | 30.4 | 376 | 37.2 | 52 | 297 | 8.4 | 52 |
| | 10 | 17 | 16 | 0 | 33 | 19.3 | 383 | 36.0 | 33 | 300 | 16.6 | 33 |
| | 11 | 5 | 1 | 0 | 6 | 3.5 | 398 | 36.4 | 6 | 298 | 7.3 | 6 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 82 | 89 | 0 | 171 | 100.0 | 361 | 44.3 | 171 | 295 | 16.4 | 171 |
| 20 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 2 | 4 | 1 | 7 | 3.0 | 329 | 50.0 | 7 | 284 | 17.0 | 7 |
| | 7 | 15 | 17 | 0 | 32 | 13.9 | 321 | 52.6 | 32 | 285 | 17.6 | 32 |
| | 8 | 29 | 14 | 0 | 43 | 18.7 | 351 | 41.8 | 43 | 296 | 11.4 | 43 |
| | 9 | 45 | 32 | 0 | 77 | 33.5 | 366 | 51.2 | 77 | 297 | 10.3 | 77 |
| | 10 | 26 | 22 | 0 | 48 | 20.9 | 372 | 53.1 | 48 | 299 | 19.3 | 48 |
| | 11 | 11 | 7 | 0 | 18 | 7.8 | 403 | 48.1 | 18 | 299 | 12.0 | 18 |
| | 12 | 1 | 3 | 0 | 4 | 1.7 | 390 | 27.5 | 4 | 300 | 4.1 | 4 |
| | 13 | 1 | 0 | 0 | 1 | 0.4 | 372 | | 1 | 282 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 130 | 99 | 1 | 230 | 100.0 | 361 | 53.4 | 230 | 295 | 14.8 | 230 |
| All Periods Combined 19 - 20 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 0 | 1 | 0 | 1 | 0.2 | 376 | | 1 | 294 | | 1 |
| | 6 | 3 | 12 | 1 | 16 | 4.0 | 326 | 48.6 | 16 | 284 | 13.7 | 16 |
| | 7 | 30 | 29 | 0 | 59 | 14.7 | 323 | 43.0 | 59 | 285 | 14.4 | 59 |
| | 8 | 50 | 36 | 0 | 86 | 21.4 | 350 | 43.1 | 86 | 296 | 18.8 | 86 |
| | 9 | 68 | 61 | 0 | 129 | 32.2 | 370 | 46.2 | 129 | 297 | 9.5 | 129 |
| | 10 | 43 | 38 | 0 | 81 | 20.2 | 377 | 46.9 | 81 | 299 | 18.1 | 81 |
| | 11 | 16 | 8 | 0 | 24 | 6.0 | 402 | 44.8 | 24 | 299 | 10.8 | 24 |
| | 12 | 1 | 3 | 0 | 4 | 1.0 | 390 | 27.5 | 4 | 300 | 4.1 | 4 |
| | 13 | 1 | 0 | 0 | 1 | 0.2 | 372 | | 1 | 282 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 212 53.0 | 188 47.0 | 1 | 401 | 100.0 | 361 | 49.6 | 401 | 295 | 15.5 | 401 |
| Not Aged Sex Composition (%) | | 11 39.3 | 17 60.7 | 0 | 28 | 7.0 | 360 | 38.7 | 28 | 294 | 23.0 | 28 |

Appendix A.2. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, Goodnews Bay District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-------------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 24 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 2 | 3 | 0 | 5 | 1.4 | 187 | 55.7 | 5 | 246 | 12.8 | 5 |
| | 6 | 5 | 5 | 0 | 10 | 2.9 | 262 | 33.6 | 10 | 273 | 12.6 | 10 |
| | 7 | 29 | 36 | 0 | 65 | 18.7 | 289 | 43.4 | 65 | 278 | 10.7 | 65 |
| | 8 | 38 | 28 | 0 | 66 | 19.0 | 301 | 60.6 | 66 | 284 | 12.6 | 65 |
| | 9 | 41 | 39 | 0 | 80 | 23.0 | 361 | 57.7 | 80 | 293 | 11.9 | 80 |
| | 10 | 54 | 28 | 0 | 82 | 23.6 | 378 | 66.1 | 82 | 297 | 12.5 | 82 |
| | 11 | 16 | 19 | 0 | 35 | 10.1 | 385 | 54.6 | 35 | 297 | 14.6 | 35 |
| | 12 | 1 | 1 | 0 | 2 | 0.6 | 480 | 2.8 | 2 | 311 | 3.5 | 2 |
| | 13 | 1 | 0 | 0 | 1 | 0.3 | 372 | | 1 | 296 | | 1 |
| | 14 | 2 | 0 | 0 | 2 | 0.6 | 355 | 67.2 | 2 | 313 | 8.5 | 2 |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 189 | 159 | 0 | 348 | 100.0 | 338 | 72.3 | 348 | 289 | 15.5 | 347 |
| 25 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 1 | 6 | 0 | 7 | 3.2 | 255 | 70.7 | 7 | 270 | 16.8 | 7 |
| | 7 | 21 | 15 | 0 | 36 | 16.3 | 303 | 51.4 | 36 | 276 | 10.9 | 36 |
| | 8 | 27 | 21 | 0 | 48 | 21.7 | 341 | 42.8 | 48 | 289 | 10.1 | 48 |
| | 9 | 35 | 33 | 0 | 68 | 30.8 | 347 | 45.6 | 68 | 291 | 9.2 | 68 |
| | 10 | 23 | 24 | 0 | 47 | 21.3 | 377 | 56.6 | 47 | 298 | 10.5 | 47 |
| | 11 | 6 | 8 | 0 | 14 | 6.3 | 389 | 52.3 | 14 | 306 | 8.6 | 14 |
| | 12 | 1 | 0 | 0 | 1 | 0.5 | 428 | | 1 | 327 | | 1 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| | 17 | | | | | | | | | | | |
| Sample Total | | 114 | 107 | 0 | 221 | 100.0 | 345 | 57.8 | 221 | 290 | 13.5 | 221 |
| All Periods Combined 24-25 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 2 | 3 | 0 | 5 | 0.9 | 187 | 55.7 | 5 | 246 | 12.8 | 5 |
| | 6 | 6 | 11 | 0 | 17 | 3.0 | 259 | 50.3 | 17 | 272 | 14.1 | 17 |
| | 7 | 50 | 51 | 0 | 101 | 17.8 | 294 | 46.6 | 101 | 277 | 10.7 | 101 |
| | 8 | 65 | 49 | 0 | 114 | 20.0 | 318 | 57.2 | 114 | 286 | 11.9 | 113 |
| | 9 | 76 | 72 | 0 | 148 | 26.0 | 354 | 52.7 | 148 | 292 | 10.8 | 148 |
| | 10 | 77 | 52 | 0 | 129 | 22.7 | 377 | 62.6 | 129 | 297 | 11.8 | 129 |
| | 11 | 22 | 27 | 0 | 49 | 8.6 | 386 | 53.4 | 49 | 299 | 13.8 | 49 |
| | 12 | 2 | 1 | 0 | 3 | 0.5 | 463 | 30.1 | 3 | 316 | 9.8 | 3 |
| | 13 | 1 | 0 | 0 | 1 | 0.2 | 372 | | 1 | 296 | | 1 |
| | 14 | 2 | 0 | 0 | 2 | 0.4 | 355 | 67.2 | 2 | 313 | 8.5 | 2 |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 303 53.3 | 266 46.7 | 0 | 569 | 100.0 | 341 | 67.1 | 569 | 289 | 14.8 | 568 |
| Not Aged Sex Composition (%) | | 29 60.4 | 19 39.6 | 0 | 48 | 8.4 | 342 | 65.8 | 48 | 295 | 13.8 | 48 |

Appendix A.3. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, Cape Avinof District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|--------------|-----|--------------|--------|---------|-------|------------------------|-------------|-------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 29 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 0 | 2 | 0 | 2 | 1.3 | 250 | 178.2 | 2 | 283 | 46.0 | 2 |
| | 7 | 2 | 5 | 0 | 7 | 4.5 | 251 | 39.7 | 7 | 278 | 17.0 | 7 |
| | 8 | 9 | 28 | 0 | 37 | 23.7 | 315 | 55.4 | 37 | 291 | 11.5 | 37 |
| | 9 | 18 | 42 | 0 | 60 | 38.5 | 333 | 54.8 | 60 | 295 | 10.0 | 60 |
| | 10 | 8 | 29 | 0 | 37 | 23.7 | 335 | 56.6 | 37 | 297 | 13.1 | 37 |
| | 11 | 4 | 8 | 0 | 12 | 7.7 | 353 | 70.3 | 12 | 300 | 12.4 | 12 |
| | 12 | 0 | 1 | 0 | 1 | 0.6 | 358 | | 1 | 308 | | 1 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 41 | 115 | 0 | 156 | 100.0 | 326 | 60.6 | 156 | 294 | 12.9 | 156 |
| 1 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 1 | 1 | 0 | 2 | 5.1 | 224 | 5.7 | 2 | 261 | 3.5 | 2 |
| | 7 | 2 | 2 | 0 | 4 | 10.3 | 245 | 27.5 | 4 | 268 | 10.3 | 4 |
| | 8 | 2 | 4 | 0 | 6 | 15.4 | 308 | 42.1 | 6 | 283 | 6.9 | 6 |
| | 9 | 5 | 8 | 0 | 13 | 33.3 | 320 | 37.6 | 13 | 291 | 8.9 | 13 |
| | 10 | 4 | 6 | 0 | 10 | 25.6 | 348 | 44.3 | 10 | 299 | 8.2 | 10 |
| | 11 | 1 | 2 | 0 | 3 | 7.7 | 319 | 43.2 | 3 | 299 | 4.2 | 3 |
| | 12 | 1 | 0 | 0 | 1 | 2.6 | 254 | | 1 | 280 | | 1 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 16 | 23 | 0 | 39 | 100.0 | 311 | 51.4 | 39 | 288 | 13.6 | 39 |
| 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 0 | 5 | 0 | 5 | 1.4 | 181 | 44.3 | 5 | 242 | 17.6 | 5 |
| | 6 | 0 | 9 | 0 | 9 | 2.6 | 203 | 29.3 | 9 | 246 | 12.0 | 9 |
| | 7 | 14 | 32 | 0 | 46 | 13.1 | 269 | 45.0 | 46 | 270 | 13.1 | 46 |
| | 8 | 25 | 38 | 0 | 63 | 17.9 | 307 | 56.3 | 63 | 281 | 13.9 | 63 |
| | 9 | 41 | 88 | 0 | 129 | 36.6 | 327 | 46.3 | 129 | 287 | 11.8 | 129 |
| | 10 | 25 | 52 | 0 | 77 | 21.9 | 353 | 51.1 | 77 | 292 | 10.9 | 77 |
| | 11 | 6 | 13 | 0 | 19 | 5.4 | 342 | 57.1 | 19 | 294 | 11.3 | 19 |
| | 12 | 1 | 3 | 0 | 4 | 1.1 | 347 | 49.7 | 4 | 274 | 49.9 | 4 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 112 | 240 | 0 | 352 | 100.0 | 317 | 60.6 | 352 | 284 | 16.9 | 352 |

-Continued-

Appendix A.3. (p. 2 of 2)

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|----------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 0 | 5 | 0 | 5 | 0.9 | 181 | 44.3 | 5 | 242 | 17.6 | 5 |
| | 6 | 1 | 12 | 0 | 13 | 2.4 | 214 | 59.5 | 13 | 254 | 21.6 | 13 |
| | 7 | 18 | 39 | 0 | 57 | 10.4 | 265 | 43.7 | 57 | 270 | 13.6 | 57 |
| All Periods Combined | 8 | 36 | 70 | 0 | 106 | 19.4 | 310 | 55.0 | 106 | 285 | 13.6 | 106 |
| 29 May- 2 June | 9 | 64 | 138 | 0 | 202 | 36.9 | 328 | 48.4 | 202 | 290 | 11.6 | 202 |
| | 10 | 37 | 87 | 0 | 124 | 22.7 | 347 | 52.5 | 124 | 294 | 11.6 | 124 |
| | 11 | 11 | 23 | 0 | 34 | 6.2 | 344 | 60.2 | 34 | 296 | 11.5 | 34 |
| | 12 | 2 | 4 | 0 | 6 | 1.1 | 333 | 54.9 | 6 | 281 | 41.0 | 6 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 169 | 378 | 0 | 547 | 100.0 | 319 | 60.1 | 547 | 287 | 16.3 | 547 |
| Sex Composition (%) | | 30.9 | 69.1 | | | | | | | | | |
| Not Aged | | 13 | 43 | 0 | 56 | 10.2 | 323 | 57.3 | 56 | 289 | 13.4 | 56 |
| Sex Composition (%) | | 23.2 | 76.8 | | | | | | | | | |

Appendix A.4. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, Nelson Island District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 2 | 1 | 0 | 3 | 0.8 | 215 | 37.1 | 3 | 254 | 3.5 | 3 |
| | 6 | 5 | 4 | 0 | 9 | 2.3 | 230 | 38.6 | 9 | 259 | 8.8 | 9 |
| | 7 | 19 | 16 | 0 | 35 | 9.0 | 249 | 32.2 | 35 | 269 | 7.0 | 35 |
| | 8 | 13 | 12 | 0 | 25 | 6.5 | 293 | 40.6 | 25 | 279 | 10.3 | 25 |
| | 9 | 60 | 30 | 0 | 90 | 23.3 | 305 | 42.4 | 90 | 285 | 8.7 | 90 |
| | 10 | 62 | 38 | 0 | 100 | 25.8 | 337 | 51.2 | 100 | 293 | 9.1 | 100 |
| | 11 | 57 | 57 | 0 | 114 | 29.5 | 350 | 55.4 | 114 | 294 | 9.2 | 114 |
| | 12 | 4 | 2 | 0 | 6 | 1.6 | 336 | 51.4 | 6 | 300 | 9.6 | 6 |
| | 13 | 0 | 3 | 0 | 3 | 0.8 | 457 | 50.8 | 3 | 309 | 4.9 | 3 |
| | 14 | 0 | 2 | 0 | 2 | 0.5 | 378 | 22.6 | 2 | 305 | 9.2 | 2 |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 222 | 165 | 0 | 387 | 100.0 | 320 | 60.1 | 387 | 287 | 13.0 | 387 |
| Sex Composition (%) | | 57.4 | 42.6 | | | | | | | | | |
| Not Aged | | 17 | 16 | 0 | 33 | 8.5 | 317 | 47.8 | 33 | 288 | 10.7 | 33 |
| Sex Composition (%) | | 51.5 | 48.5 | | | | | | | | | |

Appendix A.5. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, Cape Romanzof District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-------------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 24 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 0 | 3 | 0 | 3 | 1.6 | 179 | 22.0 | 3 | 244 | 11.2 | 3 |
| | 6 | 4 | 6 | 0 | 10 | 5.2 | 233 | 25.4 | 10 | 258 | 8.2 | 10 |
| | 7 | 9 | 19 | 0 | 28 | 14.6 | 266 | 33.4 | 28 | 268 | 7.1 | 28 |
| | 8 | 19 | 13 | 0 | 32 | 16.7 | 294 | 36.7 | 32 | 278 | 8.5 | 32 |
| | 9 | 27 | 28 | 0 | 55 | 28.6 | 321 | 39.2 | 55 | 285 | 10.7 | 55 |
| | 10 | 18 | 19 | 0 | 37 | 19.3 | 348 | 34.5 | 37 | 290 | 7.3 | 37 |
| | 11 | 13 | 13 | 0 | 26 | 13.5 | 354 | 39.5 | 26 | 293 | 9.9 | 26 |
| | 12 | 1 | 0 | 0 | 1 | 0.5 | 382 | | 1 | 296 | | 1 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 91 | 101 | 0 | 192 | 100.0 | 312 | 52.7 | 192 | 281 | 14.1 | 192 |
| 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 2 | 4 | 0 | 6 | 2.7 | 221 | 36.3 | 6 | 252 | 13.0 | 6 |
| | 6 | 14 | 7 | 0 | 21 | 9.5 | 226 | 25.3 | 21 | 252 | 7.5 | 21 |
| | 7 | 32 | 16 | 0 | 48 | 21.6 | 258 | 22.0 | 48 | 263 | 7.2 | 48 |
| | 8 | 19 | 16 | 0 | 35 | 15.8 | 293 | 38.4 | 35 | 272 | 10.4 | 35 |
| | 9 | 24 | 23 | 0 | 47 | 21.2 | 334 | 45.3 | 47 | 284 | 9.6 | 47 |
| | 10 | 22 | 20 | 0 | 42 | 18.9 | 353 | 44.9 | 42 | 288 | 8.9 | 42 |
| | 11 | 15 | 4 | 0 | 19 | 8.6 | 380 | 34.2 | 19 | 297 | 7.5 | 19 |
| | 12 | 3 | 1 | 0 | 4 | 1.8 | 379 | 11.9 | 4 | 300 | 4.4 | 4 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 131 | 91 | 0 | 222 | 100.0 | 306 | 61.7 | 222 | 276 | 16.5 | 222 |
| All Periods Combined 24-26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 2 | 7 | 0 | 9 | 2.2 | 207 | 37.3 | 9 | 249 | 12.2 | 9 |
| | 6 | 18 | 13 | 0 | 31 | 7.5 | 229 | 25.1 | 31 | 254 | 8.1 | 31 |
| | 7 | 41 | 35 | 0 | 76 | 18.4 | 261 | 26.9 | 76 | 265 | 7.4 | 76 |
| | 8 | 38 | 29 | 0 | 67 | 16.2 | 293 | 37.3 | 67 | 275 | 9.9 | 67 |
| | 9 | 51 | 51 | 0 | 102 | 24.6 | 327 | 42.5 | 102 | 284 | 10.2 | 102 |
| | 10 | 40 | 39 | 0 | 79 | 19.1 | 351 | 40.2 | 79 | 289 | 8.2 | 79 |
| | 11 | 28 | 17 | 0 | 45 | 10.9 | 365 | 39.2 | 45 | 294 | 9.0 | 45 |
| | 12 | 4 | 1 | 0 | 5 | 1.2 | 379 | 10.4 | 5 | 299 | 4.2 | 5 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 222 53.6 | 192 46.4 | 0 | 414 | 100.0 | 309 | 57.7 | 414 | 278 | 15.7 | 414 |
| Not Aged Sex Composition (%) | | 3 42.9 | 4 57.1 | 0 | 7 | 1.7 | 309 | 62.5 | 7 | 274 | 19.3 | 7 |

Appendix A.6. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, St Michael Subdistrict, Norton Sound District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|----------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 28 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 0 | 1 | 0 | 1 | 0.6 | 336 | | 1 | 280 | | 1 |
| | 6 | 8 | 4 | 0 | 12 | 6.7 | 242 | 36.7 | 12 | 254 | 9.3 | 12 |
| | 7 | 31 | 31 | 0 | 62 | 34.4 | 275 | 35.1 | 62 | 267 | 9.8 | 62 |
| | 8 | 17 | 18 | 0 | 35 | 19.4 | 292 | 44.9 | 35 | 274 | 13.2 | 35 |
| | 9 | 20 | 22 | 0 | 42 | 23.3 | 317 | 39.5 | 42 | 281 | 11.3 | 42 |
| | 10 | 16 | 7 | 0 | 23 | 12.8 | 314 | 31.6 | 23 | 282 | 11.8 | 23 |
| | 11 | 4 | 1 | 0 | 5 | 2.8 | 330 | 38.3 | 5 | 294 | 8.2 | 5 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 96 | 84 | 0 | 180 | 100.0 | 293 | 43.8 | 180 | 273 | 14.1 | 180 |
| Sex Composition (%) | | 53.3 | 46.7 | | | | | | | | | |
| Not Aged | | 19 | 10 | 0 | 29 | 16.1 | 307 | 52.6 | 29 | 274 | 13.4 | 29 |
| Sex Composition (%) | | 65.5 | 34.5 | | | | | | | | | |

Appendix A.7. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, Cape Denbigh Subdistrict, Norton Sound District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|------------------------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| All Periods Combined 27 -30 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 11 | 10 | 0 | 21 | 10.1 | 232 | 21.3 | 21 | 250 | 6.1 | 21 |
| | 7 | 24 | 25 | 0 | 49 | 23.6 | 259 | 24.1 | 49 | 261 | 9.2 | 49 |
| | 8 | 18 | 14 | 0 | 32 | 15.4 | 290 | 39.5 | 32 | 271 | 8.4 | 32 |
| | 9 | 23 | 36 | 0 | 59 | 28.4 | 302 | 35.5 | 59 | 278 | 9.7 | 59 |
| | 10 | 15 | 16 | 0 | 31 | 14.9 | 301 | 33.1 | 31 | 282 | 8.0 | 31 |
| | 11 | 7 | 8 | 0 | 15 | 7.2 | 313 | 48.2 | 15 | 286 | 7.8 | 15 |
| | 12 | | | | | | | | | | | |
| | 13 | 0 | 1 | 0 | 1 | 0.5 | 372 | | 1 | 310 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 98 | 110 | 0 | 208 | 100.0 | 284 | 41.8 | 208 | 272 | 14.1 | 208 |
| Sex Composition (%) | | 47.1 | 52.9 | | | | | | | | | |
| Not Aged | | 2 | 0 | 0 | 2 | 1.0 | 280 | 8.5 | 2 | 276 | 8.5 | 2 |
| Sex Composition (%) | | 100.0 | 0.0 | | | | | | | | | |

Appendix A.8. Age, sex, and size composition of herring sampled from the commercial beach seine harvest, Cape Denbigh Subdistrict, Norton Sound District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|----------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 29 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 7 | 3 | 0 | 10 | 5.6 | 187 | 28.5 | 10 | 245 | 10.2 | 10 |
| | 6 | 25 | 21 | 0 | 46 | 25.8 | 212 | 29.1 | 46 | 257 | 10.0 | 46 |
| | 7 | 24 | 34 | 0 | 58 | 32.6 | 246 | 37.3 | 58 | 265 | 11.0 | 58 |
| | 8 | 14 | 13 | 0 | 27 | 15.2 | 269 | 42.7 | 27 | 275 | 14.4 | 27 |
| | 9 | 9 | 12 | 0 | 21 | 11.8 | 313 | 53.8 | 21 | 285 | 14.7 | 21 |
| | 10 | 7 | 6 | 0 | 13 | 7.3 | 302 | 69.7 | 13 | 286 | 20.4 | 13 |
| | 11 | 2 | 1 | 0 | 3 | 1.7 | 360 | 98.5 | 3 | 305 | 11.9 | 3 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 88 | 90 | 0 | 178 | 100.0 | 251 | 57.1 | 178 | 268 | 17.5 | 178 |
| Sex Composition (%) | | 49.4 | 50.6 | | | | | | | | | |
| Not Aged | | 12 | 20 | 0 | 32 | 18.0 | 250 | 49.4 | 32 | 268 | 14.2 | 32 |
| Sex Composition (%) | | 37.5 | 62.5 | | | | | | | | | |

Appendix A.9. Age, sex, and size composition of herring sampled from the commercial gillnet harvest, Port Clarence District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-------------|---------|-------|------------------|----------|------|----------------|-----------|------|-----------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 9 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 11 | 6 | 0 | 17 | 7.1 | 148 | 19.8 | 2 | 215 | 7.5 | 17 |
| | 6 | 43 | 31 | 1 | 75 | 31.1 | 150 | 19.0 | 17 | 224 | 10.8 | 75 |
| | 7 | 10 | 10 | 0 | 20 | 8.3 | 171 | 25.3 | 3 | 237 | 16.5 | 20 |
| | 8 | 10 | 9 | 1 | 20 | 8.3 | 150 | | 1 | 252 | 11.7 | 20 |
| | 9 | 10 | 9 | 0 | 19 | 7.9 | 146 | | 1 | 251 | 24.7 | 19 |
| | 10 | 30 | 24 | 0 | 54 | 22.4 | 196 | 66.4 | 3 | 257 | 20.0 | 54 |
| | 11 | 13 | 17 | 0 | 30 | 12.4 | 169 | 43.8 | 2 | 261 | 16.0 | 30 |
| | 12 | 1 | 3 | 0 | 4 | 1.7 | 0 | | 0 | 260 | 11.1 | 4 |
| | 13 | 1 | 1 | 0 | 2 | 0.8 | 134 | | 1 | 226 | 4.9 | 2 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 129 | 110 | 2 | 241 | 100.0 | 157 | 29.6 | 30 | 242 | 22.5 | 241 |
| 11 - 12 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 1 | 7 | 0 | 8 | 3.8 | 244 | 31.3 | 8 | 255 | 9.0 | 8 |
| | 7 | 12 | 20 | 0 | 32 | 15.2 | 274 | 30.2 | 32 | 266 | 8.6 | 32 |
| | 8 | 15 | 24 | 0 | 39 | 18.6 | 297 | 31.3 | 39 | 272 | 8.7 | 39 |
| | 9 | 29 | 22 | 0 | 51 | 24.3 | 321 | 33.0 | 51 | 279 | 10.1 | 51 |
| | 10 | 32 | 35 | 0 | 67 | 31.9 | 332 | 29.9 | 67 | 285 | 8.1 | 67 |
| | 11 | 7 | 6 | 0 | 13 | 6.2 | 349 | 29.8 | 13 | 282 | 8.1 | 13 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 96 | 114 | 0 | 210 | 100.0 | 312 | 40.2 | 210 | 277 | 11.9 | 210 |
| All Periods Combined 9 - 12 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 11 | 6 | 0 | 17 | 3.8 | 148 | 19.8 | 2 | 215 | 7.5 | 17 |
| | 6 | 44 | 38 | 1 | 83 | 18.4 | 180 | 50.4 | 25 | 227 | 13.9 | 83 |
| | 7 | 22 | 30 | 0 | 52 | 11.5 | 265 | 41.4 | 35 | 255 | 18.6 | 52 |
| | 8 | 25 | 33 | 1 | 59 | 13.1 | 293 | 38.6 | 40 | 265 | 13.8 | 59 |
| | 9 | 39 | 31 | 0 | 70 | 15.5 | 318 | 40.7 | 52 | 272 | 20.0 | 70 |
| | 10 | 62 | 59 | 0 | 121 | 26.8 | 326 | 41.9 | 70 | 273 | 20.2 | 121 |
| | 11 | 20 | 23 | 0 | 43 | 9.5 | 325 | 70.0 | 15 | 267 | 17.0 | 43 |
| | 12 | 1 | 3 | 0 | 4 | 0.9 | 0 | | 0 | 260 | 11.1 | 4 |
| | 13 | 1 | 1 | 0 | 2 | 0.4 | 134 | | 1 | 226 | 4.9 | 2 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 225 50.1 | 224 49.9 | 2 | 451 | 100.0 | 292 | 64.3 | 240 | 258 | 25.5 | 451 |
| Not Aged Sex Composition (%) | | 0 0.0 | 1 100.0 | 0 | 1 | 0.2 | 0 | | 0 | 211 | | 1 |

Appendix A.10. Age, sex, and size composition of herring sampled from the commercial purse seine harvest, Port Clarence District, 1988.

| Sample Dates | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|----------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 11 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 3 | 1 | 0 | 4 | 1.9 | 125 | 13.7 | 4 | 211 | 6.7 | 4 |
| | 5 | 23 | 19 | 0 | 42 | 20.0 | 144 | 20.6 | 42 | 221 | 8.8 | 42 |
| | 6 | 51 | 39 | 0 | 90 | 42.9 | 185 | 33.5 | 90 | 238 | 12.3 | 90 |
| | 7 | 19 | 12 | 0 | 31 | 14.8 | 230 | 40.3 | 31 | 254 | 13.9 | 31 |
| | 8 | 4 | 6 | 0 | 10 | 4.8 | 273 | 44.5 | 10 | 264 | 12.2 | 10 |
| | 9 | 7 | 10 | 0 | 17 | 8.1 | 297 | 62.6 | 17 | 272 | 15.8 | 17 |
| | 10 | 4 | 5 | 0 | 9 | 4.3 | 302 | 57.9 | 9 | 276 | 18.4 | 9 |
| | 11 | 0 | 3 | 0 | 3 | 1.4 | 355 | 31.9 | 3 | 285 | 7.6 | 3 |
| | 12 | 1 | 3 | 0 | 4 | 1.9 | 306 | 25.9 | 4 | 283 | 3.9 | 4 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 112 | 98 | 0 | 210 | 100.0 | 205 | 65.5 | 210 | 244 | 22.1 | 210 |
| Sex Composition (%) | | 53.3 | 46.7 | | | | | | | | | |
| Not Aged | | 0 | 0 | 0 | 0 | 0.0 | 0 | | 0 | 0 | | 0 |

Appendix A.11. Age, sex, and size composition of herring sampled from the test commercial gillnet harvest, Port Clarence District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|----------------------|-----|--------------|--------|---------|-------|------------------------|-------------|----|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 3 - 9 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | | | | | | | | | | | |
| | 7 | 0 | 1 | 0 | 1 | 2.2 | 0 | | 0 | 238 | | 1 |
| | 8 | 3 | 0 | 0 | 3 | 6.7 | 0 | | 0 | 266 | 4.9 | 3 |
| | 9 | 6 | 5 | 0 | 11 | 24.4 | 0 | | 0 | 257 | 8.7 | 11 |
| | 10 | 4 | 3 | 0 | 7 | 15.6 | 0 | | 0 | 255 | 10.5 | 7 |
| | 11 | 10 | 9 | 0 | 19 | 42.2 | 0 | | 0 | 257 | 13.1 | 19 |
| | 12 | 1 | 3 | 0 | 4 | 8.9 | 0 | | 0 | 254 | 5.7 | 4 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 24 | 21 | 0 | 45 | 100.0 | 0 | | 0 | 257 | 11.0 | 45 |
| Sex Composition (%) | | 53.3 | 46.7 | | | | | | | | | |
| Not Aged | | 1 | 1 | 0 | 2 | 4.4 | 0 | | 0 | 243 | 7.8 | 2 |
| Sex Composition (%) | | 50.0 | 50.0 | | | | | | | | | |

Appendix A.12. Age, sex, and size composition of herring sampled from the subsistence gillnet harvest, Elim Subdistrict, Norton Sound District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|----------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 2 | 1 | 0 | 3 | 5.1 | 253 | 33.3 | 3 | 260 | 13.6 | 3 |
| | 7 | 9 | 6 | 0 | 15 | 25.4 | 307 | 49.9 | 15 | 275 | 11.8 | 15 |
| | 8 | 15 | 4 | 0 | 19 | 32.2 | 305 | 28.6 | 19 | 276 | 8.2 | 19 |
| | 9 | 14 | 6 | 0 | 20 | 33.9 | 323 | 36.2 | 20 | 279 | 8.1 | 20 |
| | 10 | 2 | 0 | 0 | 2 | 3.4 | 343 | 49.5 | 2 | 284 | 11.3 | 2 |
| | 11 | | | | | | | | | | | |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 42 | 17 | 0 | 59 | 100.0 | 310 | 40.5 | 59 | 276 | 10.1 | 59 |
| Sex Composition (%) | | 71.2 | 28.8 | | | | | | | | | |
| Not Aged | | 0 | 0 | 0 | 0 | 0.0 | 0 | | 0 | 0 | | 0 |

Appendix A.13. Age, sex, and size composition of herring sampled from the variable-mesh gillnet catches, Security Cove District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|--------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 6 - 12 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 1 | 0 | 0 | 1 | 1.2 | 126 | | 1 | 218 | | 1 |
| | 5 | 1 | 3 | 0 | 4 | 4.8 | 179 | 28.0 | 4 | 234 | 11.4 | 4 |
| | 6 | 0 | 2 | 0 | 2 | 2.4 | 335 | 49.5 | 2 | 283 | 15.6 | 2 |
| | 7 | 6 | 8 | 0 | 14 | 16.7 | 293 | 35.0 | 14 | 267 | 9.6 | 14 |
| | 8 | 6 | 3 | 0 | 9 | 10.7 | 330 | 44.1 | 9 | 280 | 10.1 | 9 |
| | 9 | 16 | 9 | 0 | 25 | 29.8 | 376 | 47.0 | 25 | 289 | 9.2 | 25 |
| | 10 | 8 | 13 | 0 | 21 | 25.0 | 398 | 47.5 | 21 | 293 | 9.4 | 21 |
| | 11 | 3 | 3 | 0 | 6 | 7.1 | 445 | 49.0 | 6 | 300 | 6.1 | 6 |
| | 12 | 0 | 2 | 0 | 2 | 2.4 | 442 | 10.6 | 2 | 297 | 1.4 | 2 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 41 | 43 | 0 | 84 | 100.0 | 356 | 77.5 | 84 | 283 | 18.8 | 84 |
| 13 - 19 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 1 | 1 | 0 | 2 | 0.9 | 130 | 2.8 | 2 | 224 | 0.7 | 2 |
| | 5 | 10 | 10 | 0 | 20 | 8.8 | 199 | 47.1 | 20 | 249 | 16.4 | 20 |
| | 6 | 5 | 6 | 0 | 11 | 4.9 | 240 | 46.1 | 11 | 262 | 20.1 | 11 |
| | 7 | 17 | 27 | 0 | 44 | 19.5 | 289 | 38.9 | 44 | 274 | 9.7 | 44 |
| | 8 | 10 | 22 | 0 | 32 | 14.2 | 347 | 71.7 | 32 | 291 | 18.1 | 32 |
| | 9 | 27 | 28 | 0 | 55 | 24.3 | 362 | 50.9 | 55 | 295 | 10.2 | 55 |
| | 10 | 27 | 20 | 0 | 47 | 20.8 | 402 | 58.8 | 47 | 306 | 21.3 | 47 |
| | 11 | 5 | 7 | 0 | 12 | 5.3 | 402 | 64.7 | 12 | 303 | 13.6 | 12 |
| | 12 | 2 | 1 | 0 | 3 | 1.3 | 381 | 22.1 | 3 | 304 | 6.0 | 3 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 104 | 122 | 0 | 226 | 100.0 | 334 | 84.2 | 226 | 287 | 24.0 | 226 |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 10 | 7 | 0 | 17 | 19.1 | 131 | 16.8 | 17 | 226 | 11.9 | 17 |
| | 5 | 13 | 16 | 0 | 29 | 32.6 | 151 | 21.8 | 29 | 232 | 12.2 | 29 |
| | 6 | 5 | 1 | 0 | 6 | 6.7 | 188 | 35.4 | 6 | 251 | 13.0 | 6 |
| | 7 | 11 | 3 | 0 | 14 | 15.7 | 242 | 37.3 | 14 | 266 | 11.6 | 14 |
| | 8 | 3 | 2 | 0 | 5 | 5.6 | 270 | 47.6 | 5 | 279 | 12.6 | 5 |
| | 9 | 6 | 4 | 0 | 10 | 11.2 | 309 | 28.5 | 10 | 292 | 9.1 | 10 |
| | 10 | 2 | 2 | 0 | 4 | 4.5 | 347 | 37.8 | 4 | 301 | 5.9 | 4 |
| | 11 | 1 | 0 | 0 | 1 | 1.1 | 240 | | 1 | 288 | | 1 |
| | 12 | 1 | 1 | 0 | 2 | 2.2 | 375 | 60.8 | 2 | 310 | 21.2 | 2 |
| | 13 | 0 | 1 | 0 | 1 | 1.1 | 390 | | 1 | 315 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 52 | 37 | 0 | 89 | 100.0 | 206 | 80.4 | 89 | 253 | 29.8 | 89 |

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Appendix A.13. (p. 2 of 2)

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|----------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 12 | 8 | 0 | 20 | 5.0 | 131 | 15.5 | 20 | 225 | 11.1 | 20 |
| | 5 | 24 | 29 | 0 | 53 | 13.3 | 171 | 40.5 | 53 | 239 | 15.7 | 53 |
| | 6 | 10 | 9 | 0 | 19 | 4.8 | 233 | 59.5 | 19 | 261 | 19.3 | 19 |
| | 7 | 34 | 38 | 0 | 72 | 18.0 | 281 | 42.0 | 72 | 271 | 10.6 | 72 |
| All Weeks Combined | 8 | 19 | 27 | 0 | 46 | 11.5 | 336 | 68.4 | 46 | 288 | 16.9 | 46 |
| 6 - 26 May | 9 | 49 | 41 | 0 | 90 | 22.6 | 360 | 51.2 | 90 | 293 | 10.0 | 90 |
| | 10 | 37 | 35 | 0 | 72 | 18.0 | 398 | 55.6 | 72 | 302 | 18.8 | 72 |
| | 11 | 9 | 10 | 0 | 19 | 4.8 | 407 | 72.5 | 19 | 301 | 11.7 | 19 |
| | 12 | 3 | 4 | 0 | 7 | 1.8 | 397 | 41.8 | 7 | 304 | 10.8 | 7 |
| | 13 | 0 | 1 | 0 | 1 | 0.3 | 390 | | 1 | 315 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 197 | 202 | 0 | 399 | 100.0 | 310 | 99.4 | 399 | 278 | 27.9 | 399 |
| Sex Composition (%) | | 49.4 | 50.6 | | | | | | | | | |
| Not Aged | | 39 | 35 | 0 | 74 | 18.5 | 302 | 91.9 | 74 | 276 | 25.6 | 74 |
| Sex Composition (%) | | 52.7 | 47.3 | | | | | | | | | |

Appendix A.14. Age, sex, and size composition of herring sampled from the variable-mesh gillnet catches, Goodnews Bay District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|--------------|-----|--------------|--------|---------|-------|------------------------|-------------|-------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 6 - 12 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | | | | | | | | | | | |
| | 7 | 0 | 3 | 0 | 3 | 17.6 | 330 | 53.8 | 3 | 269 | 7.0 | 3 |
| | 8 | 1 | 2 | 0 | 3 | 17.6 | 367 | 32.1 | 3 | 281 | 5.5 | 3 |
| | 9 | 4 | 4 | 0 | 8 | 47.1 | 422 | 59.7 | 8 | 295 | 11.9 | 8 |
| | 10 | 1 | 2 | 0 | 3 | 17.6 | 437 | 26.6 | 3 | 298 | 9.5 | 3 |
| | 11 | | | | | | | | | | | |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 6 | 11 | 0 | 17 | 100.0 | 399 | 61.2 | 17 | 288 | 14.1 | 17 |
| 13 - 19 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 0 | 2 | 0 | 2 | 0.8 | 155 | 26.9 | 2 | 224 | 13.4 | 2 |
| | 5 | 9 | 2 | 0 | 11 | 4.5 | 201 | 23.2 | 11 | 239 | 5.9 | 11 |
| | 6 | 5 | 8 | 0 | 13 | 5.3 | 305 | 67.0 | 13 | 268 | 16.1 | 13 |
| | 7 | 24 | 13 | 0 | 37 | 15.0 | 312 | 68.2 | 37 | 273 | 14.9 | 37 |
| | 8 | 32 | 18 | 0 | 50 | 20.3 | 366 | 60.8 | 50 | 286 | 11.1 | 50 |
| | 9 | 37 | 34 | 0 | 71 | 28.9 | 406 | 53.8 | 71 | 294 | 9.9 | 71 |
| | 10 | 22 | 18 | 0 | 40 | 16.3 | 412 | 55.5 | 40 | 297 | 9.1 | 40 |
| | 11 | 9 | 6 | 0 | 15 | 6.1 | 419 | 74.3 | 15 | 295 | 16.6 | 15 |
| | 12 | 4 | 2 | 0 | 6 | 2.4 | 429 | 69.0 | 6 | 296 | 8.4 | 6 |
| | 13 | 1 | 0 | 0 | 1 | 0.4 | 535 | | 1 | 307 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 143 | 103 | 0 | 246 | 100.0 | 370 | 82.4 | 246 | 285 | 18.7 | 246 |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 10 | 8 | 0 | 18 | 8.4 | 134 | 31.9 | 18 | 222 | 11.1 | 18 |
| | 5 | 27 | 28 | 0 | 55 | 25.7 | 170 | 32.5 | 55 | 238 | 10.6 | 55 |
| | 6 | 12 | 4 | 0 | 16 | 7.5 | 213 | 49.0 | 16 | 249 | 13.5 | 16 |
| | 7 | 17 | 17 | 0 | 34 | 15.9 | 278 | 48.7 | 34 | 271 | 12.4 | 34 |
| | 8 | 12 | 10 | 0 | 22 | 10.3 | 361 | 73.6 | 22 | 288 | 15.9 | 22 |
| | 9 | 23 | 12 | 0 | 35 | 16.4 | 360 | 53.7 | 35 | 289 | 11.1 | 35 |
| | 10 | 16 | 8 | 0 | 24 | 11.2 | 385 | 50.1 | 24 | 294 | 9.7 | 24 |
| | 11 | 3 | 5 | 0 | 8 | 3.7 | 380 | 55.8 | 8 | 291 | 27.2 | 8 |
| | 12 | 1 | 0 | 0 | 1 | 0.5 | 356 | | 1 | 299 | | 1 |
| | 13 | 0 | 1 | 0 | 1 | 0.5 | 378 | | 1 | 293 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 121 | 93 | 0 | 214 | 100.0 | 272 | 104.3 | 214 | 265 | 28.4 | 214 |

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Appendix A.14. (p. 2 of 2)

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-------------|---------|-------|------------------------|-------------|-------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 27 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 46 | 32 | 0 | 78 | 35.1 | 121 | 25.9 | 78 | 217 | 10.7 | 78 |
| | 5 | 38 | 29 | 0 | 67 | 30.2 | 152 | 40.8 | 67 | 231 | 13.5 | 67 |
| | 6 | 12 | 8 | 0 | 20 | 9.0 | 185 | 57.9 | 20 | 245 | 22.1 | 20 |
| | 7 | 10 | 8 | 0 | 18 | 8.1 | 236 | 62.1 | 18 | 261 | 16.4 | 18 |
| | 8 | 5 | 8 | 0 | 13 | 5.9 | 305 | 59.6 | 13 | 282 | 17.2 | 13 |
| | 9 | 8 | 6 | 0 | 14 | 6.3 | 336 | 47.0 | 14 | 290 | 10.3 | 14 |
| | 10 | 8 | 2 | 0 | 10 | 4.5 | 333 | 60.4 | 10 | 291 | 15.6 | 10 |
| | 11 | 0 | 2 | 0 | 2 | 0.9 | 362 | 59.4 | 2 | 298 | 23.3 | 2 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 127 | 95 | 0 | 222 | 100.0 | 182 | 85.6 | 222 | 240 | 29.2 | 222 |
| All Weeks Combined 6 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 56 | 42 | 0 | 98 | 14.0 | 124 | 27.6 | 98 | 218 | 10.9 | 98 |
| | 5 | 74 | 59 | 0 | 133 | 19.0 | 163 | 38.8 | 133 | 234 | 12.3 | 133 |
| | 6 | 29 | 20 | 0 | 49 | 7.0 | 226 | 75.1 | 49 | 252 | 20.3 | 49 |
| | 7 | 51 | 41 | 0 | 92 | 13.2 | 285 | 65.9 | 92 | 270 | 14.8 | 92 |
| | 8 | 50 | 38 | 0 | 88 | 12.6 | 356 | 66.0 | 88 | 286 | 13.3 | 88 |
| | 9 | 72 | 56 | 0 | 128 | 18.3 | 387 | 59.7 | 128 | 292 | 10.6 | 128 |
| | 10 | 47 | 30 | 0 | 77 | 11.0 | 394 | 59.6 | 77 | 295 | 10.3 | 77 |
| | 11 | 12 | 13 | 0 | 25 | 3.6 | 402 | 68.9 | 25 | 294 | 20.2 | 25 |
| | 12 | 5 | 2 | 0 | 7 | 1.0 | 419 | 68.9 | 7 | 297 | 7.7 | 7 |
| | 13 | 1 | 1 | 0 | 2 | 0.3 | 457 | 111.0 | 2 | 300 | 9.9 | 2 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 397 56.8 | 302 43.2 | 0 | 699 | 100.0 | 281 | 120.1 | 699 | 265 | 31.7 | 699 |
| Not Aged Sex Composition (%) | | 4 50.0 | 4 50.0 | 0 | 8 | 1.1 | 311 | 146.5 | 8 | 268 | 35.0 | 8 |

Appendix A.15. Age, sex, and size composition of herring sampled by variable-mesh gillnet catches, Nelson Island District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|-----------------|-----|--------------|--------|---------|-------|------------------------|-------------|-------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 13 - 19 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 1 | 0 | 0 | 1 | 4.8 | 74 | | 1 | 218 | | 1 |
| | 5 | 0 | 1 | 0 | 1 | 4.8 | 116 | | 1 | 230 | | 1 |
| | 6 | 1 | 1 | 0 | 2 | 9.5 | 191 | 24.0 | 2 | 250 | 10.6 | 2 |
| | 7 | 1 | 3 | 0 | 4 | 19.0 | 239 | 41.6 | 4 | 263 | 17.1 | 4 |
| | 8 | 0 | 1 | 0 | 1 | 4.8 | 310 | | 1 | 289 | | 1 |
| | 9 | 4 | 0 | 0 | 4 | 19.0 | 340 | 15.9 | 4 | 304 | 59.8 | 4 |
| | 10 | 3 | 2 | 0 | 5 | 23.8 | 346 | 43.0 | 5 | 293 | 11.0 | 5 |
| | 11 | 1 | 2 | 0 | 3 | 14.3 | 419 | 71.1 | 3 | 311 | 16.9 | 3 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 11 | 10 | 0 | 21 | 100.0 | 294 | 101.5 | 21 | 281 | 37.7 | 21 |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 5 | 7 | 0 | 12 | 5.4 | 110 | 25.1 | 12 | 216 | 8.6 | 12 |
| | 5 | 10 | 12 | 0 | 22 | 10.0 | 150 | 33.9 | 22 | 233 | 13.0 | 22 |
| | 6 | 8 | 5 | 0 | 13 | 5.9 | 172 | 35.8 | 13 | 245 | 9.2 | 13 |
| | 7 | 16 | 14 | 0 | 30 | 13.6 | 238 | 48.5 | 30 | 266 | 11.9 | 30 |
| | 8 | 10 | 7 | 0 | 17 | 7.7 | 275 | 65.8 | 17 | 277 | 15.1 | 17 |
| | 9 | 28 | 21 | 0 | 49 | 22.2 | 326 | 44.7 | 49 | 289 | 10.0 | 49 |
| | 10 | 25 | 22 | 0 | 47 | 21.3 | 353 | 53.2 | 47 | 295 | 10.8 | 47 |
| | 11 | 11 | 13 | 0 | 24 | 10.9 | 369 | 59.4 | 24 | 299 | 9.2 | 24 |
| | 12 | 0 | 4 | 0 | 4 | 1.8 | 392 | 67.7 | 4 | 299 | 7.4 | 4 |
| | 13 | 2 | 1 | 0 | 3 | 1.4 | 368 | 59.6 | 3 | 304 | 8.7 | 3 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 115 | 106 | 0 | 221 | 100.0 | 284 | 96.5 | 221 | 276 | 27.5 | 221 |
| 27 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 12 | 19 | 0 | 31 | 15.2 | 115 | 34.1 | 31 | 216 | 9.3 | 31 |
| | 5 | 23 | 11 | 0 | 34 | 16.7 | 154 | 41.9 | 34 | 234 | 10.4 | 34 |
| | 6 | 9 | 9 | 0 | 18 | 8.8 | 189 | 43.1 | 18 | 248 | 10.4 | 18 |
| | 7 | 16 | 8 | 0 | 24 | 11.8 | 241 | 55.3 | 24 | 266 | 11.9 | 24 |
| | 8 | 9 | 8 | 0 | 17 | 8.3 | 314 | 60.3 | 17 | 283 | 13.1 | 17 |
| | 9 | 22 | 19 | 0 | 41 | 20.1 | 313 | 70.5 | 41 | 288 | 9.2 | 41 |
| | 10 | 17 | 16 | 0 | 33 | 16.2 | 330 | 57.6 | 33 | 291 | 8.5 | 33 |
| | 11 | 1 | 3 | 0 | 4 | 2.0 | 349 | 44.3 | 4 | 290 | 7.0 | 4 |
| | 12 | 1 | 1 | 0 | 2 | 1.0 | 344 | 39.6 | 2 | 292 | 16.3 | 2 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 110 | 94 | 0 | 204 | 100.0 | 241 | 99.2 | 204 | 262 | 30.0 | 204 |

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Appendix A.15. (p. 2 of 2)

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-------------|---------|-------|------------------------|-------------|-------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 3 - 9 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 20 | 14 | 0 | 34 | 16.8 | 93 | 29.1 | 34 | 210 | 7.7 | 34 |
| | 5 | 17 | 14 | 0 | 31 | 15.3 | 130 | 37.7 | 31 | 228 | 13.8 | 31 |
| | 6 | 12 | 7 | 0 | 19 | 9.4 | 181 | 59.7 | 19 | 245 | 22.0 | 19 |
| | 7 | 17 | 19 | 0 | 36 | 17.8 | 224 | 30.9 | 36 | 263 | 11.1 | 36 |
| | 8 | 10 | 7 | 0 | 17 | 8.4 | 278 | 53.7 | 17 | 276 | 12.2 | 17 |
| | 9 | 15 | 15 | 0 | 30 | 14.9 | 300 | 58.1 | 30 | 285 | 11.9 | 30 |
| | 10 | 14 | 11 | 0 | 25 | 12.4 | 323 | 58.1 | 25 | 291 | 9.9 | 25 |
| | 11 | 3 | 6 | 0 | 9 | 4.5 | 362 | 39.9 | 9 | 296 | 12.8 | 9 |
| | 12 | 1 | 0 | 0 | 1 | 0.5 | 370 | | 1 | 295 | | 1 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 109 | 93 | 0 | 202 | 100.0 | 218 | 98.8 | 202 | 256 | 32.3 | 202 |
| 10 - 16 June | 2 | | | | | | | | | | | |
| | 3 | 2 | 1 | 0 | 3 | 1.5 | 117 | 54.5 | 3 | 213 | 29.6 | 3 |
| | 4 | 9 | 13 | 0 | 22 | 10.9 | 99 | 10.7 | 22 | 208 | 8.3 | 22 |
| | 5 | 15 | 12 | 0 | 27 | 13.4 | 134 | 30.0 | 27 | 225 | 14.8 | 27 |
| | 6 | 3 | 13 | 0 | 16 | 8.0 | 182 | 40.8 | 16 | 243 | 10.5 | 16 |
| | 7 | 13 | 8 | 0 | 21 | 10.4 | 240 | 39.5 | 21 | 264 | 12.0 | 21 |
| | 8 | 15 | 13 | 0 | 28 | 13.9 | 290 | 51.8 | 28 | 280 | 12.5 | 28 |
| | 9 | 19 | 23 | 0 | 42 | 20.9 | 329 | 53.0 | 42 | 288 | 11.2 | 42 |
| | 10 | 18 | 18 | 0 | 36 | 17.9 | 357 | 51.6 | 36 | 293 | 10.1 | 36 |
| | 11 | 2 | 4 | 0 | 6 | 3.0 | 337 | 94.1 | 6 | 298 | 10.5 | 6 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 96 | 105 | 0 | 201 | 100.0 | 253 | 104.3 | 201 | 264 | 33.2 | 201 |
| All Weeks Combined 13 May - 16 June | 2 | | | | | | | | | | | |
| | 3 | 2 | 1 | 0 | 3 | 0.4 | 117 | 54.5 | 3 | 213 | 29.6 | 3 |
| | 4 | 47 | 53 | 0 | 100 | 11.8 | 103 | 28.8 | 100 | 212 | 9.1 | 100 |
| | 5 | 65 | 50 | 0 | 115 | 13.5 | 142 | 37.7 | 115 | 230 | 13.3 | 115 |
| | 6 | 33 | 35 | 0 | 68 | 8.0 | 182 | 45.6 | 68 | 246 | 14.3 | 68 |
| | 7 | 63 | 52 | 0 | 115 | 13.5 | 235 | 43.3 | 115 | 264 | 11.7 | 115 |
| | 8 | 44 | 36 | 0 | 80 | 9.4 | 290 | 57.7 | 80 | 279 | 13.1 | 80 |
| | 9 | 88 | 78 | 0 | 166 | 19.6 | 319 | 56.6 | 166 | 288 | 13.4 | 166 |
| | 10 | 77 | 69 | 0 | 146 | 17.2 | 344 | 55.4 | 146 | 293 | 10.0 | 146 |
| | 11 | 18 | 28 | 0 | 46 | 5.4 | 365 | 61.3 | 46 | 298 | 10.9 | 46 |
| | 12 | 2 | 5 | 0 | 7 | 0.8 | 375 | 55.4 | 7 | 296 | 9.2 | 7 |
| | 13 | 2 | 1 | 0 | 3 | 0.4 | 368 | 59.6 | 3 | 304 | 8.7 | 3 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 441 51.9 | 408 48.1 | 0 | 849 | 100.0 | 251 | 102.5 | 849 | 265 | 31.7 | 849 |
| Not Aged Sex Composition (%) | | 21 44.7 | 26 55.3 | 0 | 47 | 5.5 | 267 | 96.3 | 47 | 271 | 28.8 | 47 |

Appendix A.16. Age, sex, and size composition of herring sampled from the variable-mesh gillnet catches, Kokechik Bay area, Cape Romanzof District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|-----------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 1 | 5 | 0 | 6 | 1.6 | 141 | 17.0 | 6 | 223 | 6.5 | 6 |
| | 5 | 6 | 9 | 0 | 15 | 3.9 | 196 | 27.8 | 15 | 245 | 9.5 | 15 |
| | 6 | 20 | 21 | 0 | 41 | 10.7 | 221 | 40.2 | 41 | 251 | 11.9 | 41 |
| | 7 | 34 | 44 | 0 | 78 | 20.4 | 268 | 38.5 | 78 | 265 | 8.3 | 78 |
| | 8 | 28 | 23 | 0 | 51 | 13.3 | 299 | 39.5 | 51 | 275 | 11.7 | 51 |
| | 9 | 55 | 36 | 0 | 91 | 23.8 | 337 | 45.9 | 91 | 282 | 9.0 | 91 |
| | 10 | 32 | 32 | 0 | 64 | 16.7 | 360 | 52.5 | 64 | 288 | 9.9 | 64 |
| | 11 | 14 | 16 | 0 | 30 | 7.8 | 379 | 55.7 | 30 | 296 | 10.3 | 30 |
| | 12 | 3 | 1 | 0 | 4 | 1.0 | 438 | 39.2 | 4 | 307 | 9.9 | 4 |
| | 13 | 2 | 0 | 0 | 2 | 0.5 | 456 | 38.2 | 2 | 301 | 4.2 | 2 |
| | 14 | 1 | 0 | 0 | 1 | 0.3 | 460 | | 1 | 302 | | 1 |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 196 | 187 | 0 | 383 | 100.0 | 306 | 73.5 | 383 | 274 | 18.6 | 383 |
| 27 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 3 | 1 | 0 | 4 | 7.0 | 131 | 27.4 | 4 | 218 | 13.5 | 4 |
| | 5 | 5 | 2 | 0 | 7 | 12.3 | 205 | 25.2 | 7 | 240 | 9.8 | 7 |
| | 6 | 4 | 4 | 0 | 8 | 14.0 | 208 | 26.9 | 8 | 247 | 8.4 | 8 |
| | 7 | 11 | 5 | 0 | 16 | 28.1 | 251 | 30.4 | 16 | 266 | 10.4 | 16 |
| | 8 | 5 | 1 | 0 | 6 | 10.5 | 284 | 40.7 | 6 | 273 | 4.3 | 6 |
| | 9 | 4 | 5 | 0 | 9 | 15.8 | 335 | 59.9 | 9 | 285 | 11.3 | 9 |
| | 10 | 3 | 0 | 0 | 3 | 5.3 | 320 | 44.5 | 3 | 282 | 4.2 | 3 |
| | 11 | 1 | 3 | 0 | 4 | 7.0 | 339 | 31.8 | 4 | 284 | 10.6 | 4 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 36 | 21 | 0 | 57 | 100.0 | 257 | 69.3 | 57 | 263 | 21.9 | 57 |
| 3 - 9 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 0 | 1 | 0 | 1 | 1.5 | 114 | | 1 | 210 | | 1 |
| | 5 | 5 | 3 | 0 | 8 | 12.3 | 177 | 19.9 | 8 | 236 | 9.2 | 8 |
| | 6 | 7 | 11 | 0 | 18 | 27.7 | 210 | 23.5 | 18 | 246 | 6.0 | 18 |
| | 7 | 4 | 9 | 0 | 13 | 20.0 | 241 | 27.5 | 13 | 261 | 10.4 | 13 |
| | 8 | 1 | 4 | 0 | 5 | 7.7 | 341 | 59.6 | 5 | 285 | 14.2 | 5 |
| | 9 | 2 | 4 | 0 | 6 | 9.2 | 342 | 50.8 | 6 | 286 | 11.6 | 6 |
| | 10 | 3 | 6 | 0 | 9 | 13.8 | 340 | 56.8 | 9 | 283 | 13.2 | 9 |
| | 11 | 2 | 3 | 0 | 5 | 7.7 | 371 | 45.1 | 5 | 291 | 8.6 | 5 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 24 | 41 | 0 | 65 | 100.0 | 263 | 79.1 | 65 | 262 | 22.6 | 65 |

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Appendix A.16. (p. 2 of 2)

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---------------------------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| All Weeks Combined 20 May - 9 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 4 | 7 | 0 | 11 | 2.2 | 135 | 21.0 | 11 | 220 | 9.7 | 11 |
| | 5 | 16 | 14 | 0 | 30 | 5.9 | 193 | 26.5 | 30 | 241 | 10.0 | 30 |
| | 6 | 31 | 36 | 0 | 67 | 13.3 | 216 | 35.1 | 67 | 249 | 10.3 | 67 |
| | 7 | 49 | 58 | 0 | 107 | 21.2 | 262 | 37.3 | 107 | 265 | 8.9 | 107 |
| | 8 | 34 | 28 | 0 | 62 | 12.3 | 301 | 42.5 | 62 | 276 | 11.7 | 62 |
| | 9 | 61 | 45 | 0 | 106 | 21.0 | 337 | 46.9 | 106 | 283 | 9.3 | 106 |
| | 10 | 38 | 38 | 0 | 76 | 15.0 | 356 | 53.0 | 76 | 287 | 10.2 | 76 |
| | 11 | 17 | 22 | 0 | 39 | 7.7 | 374 | 53.1 | 39 | 294 | 10.6 | 39 |
| | 12 | 3 | 1 | 0 | 4 | 0.8 | 438 | 39.2 | 4 | 307 | 9.9 | 4 |
| | 13 | 2 | 0 | 0 | 2 | 0.4 | 456 | 38.2 | 2 | 301 | 4.2 | 2 |
| | 14 | 1 | 0 | 0 | 1 | 0.2 | 460 | | 1 | 302 | | 1 |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 256 | 249 | 0 | 505 | 100.0 | 295 | 76.2 | 505 | 272 | 20.1 | 505 |
| Sex Composition (%) | | 50.7 | 49.3 | | | | | | | | | |
| Not Aged | | 8 | 11 | 0 | 19 | 3.8 | 291 | 91.3 | 19 | 267 | 24.6 | 19 |
| Sex Composition (%) | | 42.1 | 57.9 | | | | | | | | | |

Appendix A.17. Age, sex, and size composition of herring sampled from the variable-mesh gillnet catches, Scammon Bay area, Cape Romanzof District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|-----------------|-----|--------------|--------|---------|-------|------------------|----------|------|----------------|-----------|------|-----------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 1 | 0 | 0 | 1 | 3.2 | 158 | | 1 | 239 | | 1 |
| | 5 | 1 | 2 | 0 | 3 | 9.7 | 164 | 28.8 | 3 | 240 | 7.9 | 3 |
| | 6 | 2 | 0 | 0 | 2 | 6.5 | 236 | 5.7 | 2 | 265 | 1.4 | 2 |
| | 7 | 1 | 3 | 0 | 4 | 12.9 | 248 | 44.5 | 4 | 266 | 13.9 | 4 |
| | 8 | 4 | 1 | 0 | 5 | 16.1 | 272 | 40.7 | 5 | 270 | 7.1 | 5 |
| | 9 | 5 | 1 | 0 | 6 | 19.4 | 306 | 46.6 | 6 | 284 | 9.8 | 6 |
| | 10 | 5 | 1 | 0 | 6 | 19.4 | 337 | 41.3 | 6 | 292 | 7.1 | 6 |
| | 11 | 1 | 3 | 0 | 4 | 12.9 | 394 | 44.6 | 4 | 298 | 10.0 | 4 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 20 | 11 | 0 | 31 | 100.0 | 287 | 76.9 | 31 | 276 | 19.8 | 31 |
| 27 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | 2 | 0 | 0 | 2 | 2.9 | 98 | 5.7 | 2 | 206 | 4.9 | 2 |
| | 4 | 9 | 1 | 0 | 10 | 14.5 | 105 | 11.5 | 10 | 208 | 8.5 | 10 |
| | 5 | 9 | 5 | 0 | 14 | 20.3 | 158 | 35.0 | 14 | 232 | 13.0 | 14 |
| | 6 | 8 | 7 | 0 | 15 | 21.7 | 195 | 27.1 | 15 | 245 | 8.8 | 15 |
| | 7 | 7 | 2 | 0 | 9 | 13.0 | 244 | 34.0 | 9 | 263 | 12.6 | 9 |
| | 8 | 3 | 1 | 0 | 4 | 5.8 | 309 | 5.0 | 4 | 272 | 5.1 | 4 |
| | 9 | 3 | 2 | 0 | 5 | 7.2 | 321 | 30.3 | 5 | 278 | 7.4 | 5 |
| | 10 | 1 | 7 | 0 | 8 | 11.6 | 337 | 22.1 | 8 | 282 | 8.0 | 8 |
| | 11 | 1 | 1 | 0 | 2 | 2.9 | 312 | 48.1 | 2 | 282 | 4.9 | 2 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 43 | 26 | 0 | 69 | 100.0 | 213 | 84.3 | 69 | 247 | 27.1 | 69 |
| 3 - 9 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 0 | 2 | 0 | 2 | 66.7 | 109 | 1.4 | 2 | 207 | 3.5 | 2 |
| | 5 | 1 | 0 | 0 | 1 | 33.3 | 108 | | 1 | 210 | | 1 |
| | 6 | | | | | | | | | | | |
| | 7 | | | | | | | | | | | |
| | 8 | | | | | | | | | | | |
| | 9 | | | | | | | | | | | |
| | 10 | | | | | | | | | | | |
| | 11 | | | | | | | | | | | |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 1 | 2 | 0 | 3 | 100.0 | 109 | 1.2 | 3 | 208 | 3.2 | 3 |

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| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---------------------------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| All Weeks Combined 20 May - 9 June | 2 | | | | | | | | | | | |
| | 3 | 2 | 0 | 0 | 2 | 1.9 | 98 | 5.7 | 2 | 206 | 4.9 | 2 |
| | 4 | 10 | 3 | 0 | 13 | 12.6 | 109 | 17.8 | 13 | 210 | 11.5 | 13 |
| | 5 | 11 | 7 | 0 | 18 | 17.5 | 156 | 34.4 | 18 | 232 | 13.3 | 18 |
| | 6 | 10 | 7 | 0 | 17 | 16.5 | 199 | 28.9 | 17 | 247 | 10.7 | 17 |
| | 7 | 8 | 5 | 0 | 13 | 12.6 | 245 | 35.6 | 13 | 264 | 12.5 | 13 |
| | 8 | 7 | 2 | 0 | 9 | 8.7 | 288 | 34.9 | 9 | 271 | 6.1 | 9 |
| | 9 | 8 | 3 | 0 | 11 | 10.7 | 313 | 39.0 | 11 | 281 | 9.0 | 11 |
| | 10 | 6 | 8 | 0 | 14 | 13.6 | 337 | 30.3 | 14 | 286 | 8.8 | 14 |
| | 11 | 2 | 4 | 0 | 6 | 5.8 | 367 | 58.7 | 6 | 292 | 11.6 | 6 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 64 | 39 | 0 | 103 | 100.0 | 233 | 89.9 | 103 | 255 | 28.9 | 103 |
| Sex Composition (%) | | 62.1 | 37.9 | | | | | | | | | |
| Not Aged | | 1 | 1 | 0 | 2 | 1.9 | 179 | 32.5 | 2 | 240 | 16.3 | 2 |
| Sex Composition (%) | | 50.0 | 50.0 | | | | | | | | | |

Appendix A.18. Age, sex, and size composition of herring sample from the variable-mesh gillnet catches, Kokechik Bay/Scammon Bay areas combined, Cape Romanzof District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|-----------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 2 | 5 | 0 | 7 | 1.7 | 143 | 16.8 | 7 | 226 | 8.4 | 7 |
| | 5 | 7 | 11 | 0 | 18 | 4.3 | 191 | 29.7 | 18 | 244 | 9.2 | 18 |
| | 6 | 22 | 21 | 0 | 43 | 10.4 | 222 | 39.4 | 43 | 251 | 12.0 | 43 |
| | 7 | 35 | 47 | 0 | 82 | 19.8 | 267 | 38.8 | 82 | 265 | 8.5 | 82 |
| | 8 | 32 | 24 | 0 | 56 | 13.5 | 297 | 40.0 | 56 | 275 | 11.4 | 56 |
| | 9 | 60 | 37 | 0 | 97 | 23.4 | 335 | 46.3 | 97 | 282 | 9.0 | 97 |
| | 10 | 37 | 33 | 0 | 70 | 16.9 | 358 | 51.8 | 70 | 288 | 9.7 | 70 |
| | 11 | 15 | 19 | 0 | 34 | 8.2 | 381 | 54.2 | 34 | 296 | 10.1 | 34 |
| | 12 | 3 | 1 | 0 | 4 | 1.0 | 438 | 39.2 | 4 | 307 | 9.9 | 4 |
| | 13 | 2 | 0 | 0 | 2 | 0.5 | 456 | 38.2 | 2 | 301 | 4.2 | 2 |
| | 14 | 1 | 0 | 0 | 1 | 0.2 | 460 | | 1 | 302 | | 1 |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 216 | 198 | 0 | 414 | 100.0 | 305 | 73.8 | 414 | 274 | 18.7 | 414 |
| 27 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | 2 | 0 | 0 | 2 | 1.6 | 98 | 5.7 | 2 | 206 | 4.9 | 2 |
| | 4 | 12 | 2 | 0 | 14 | 11.1 | 112 | 20.4 | 14 | 211 | 10.6 | 14 |
| | 5 | 14 | 7 | 0 | 21 | 16.7 | 174 | 38.6 | 21 | 235 | 12.4 | 21 |
| | 6 | 12 | 11 | 0 | 23 | 18.3 | 199 | 27.2 | 23 | 245 | 8.5 | 23 |
| | 7 | 18 | 7 | 0 | 25 | 19.8 | 248 | 31.2 | 25 | 265 | 11.1 | 25 |
| | 8 | 8 | 2 | 0 | 10 | 7.9 | 294 | 33.0 | 10 | 273 | 4.4 | 10 |
| | 9 | 7 | 7 | 0 | 14 | 11.1 | 330 | 50.4 | 14 | 283 | 10.5 | 14 |
| | 10 | 4 | 7 | 0 | 11 | 8.7 | 332 | 28.3 | 11 | 282 | 6.9 | 11 |
| | 11 | 2 | 4 | 0 | 6 | 4.8 | 330 | 35.5 | 6 | 283 | 8.6 | 6 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 79 | 47 | 0 | 126 | 100.0 | 233 | 80.6 | 126 | 254 | 25.9 | 126 |
| 3 - 9 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 0 | 3 | 0 | 3 | 4.4 | 111 | 3.1 | 3 | 208 | 3.2 | 3 |
| | 5 | 6 | 3 | 0 | 9 | 13.2 | 170 | 29.7 | 9 | 233 | 12.2 | 9 |
| | 6 | 7 | 11 | 0 | 18 | 26.5 | 210 | 23.5 | 18 | 246 | 6.0 | 18 |
| | 7 | 4 | 9 | 0 | 13 | 19.1 | 241 | 27.5 | 13 | 261 | 10.4 | 13 |
| | 8 | 1 | 4 | 0 | 5 | 7.4 | 341 | 59.6 | 5 | 285 | 14.2 | 5 |
| | 9 | 2 | 4 | 0 | 6 | 8.8 | 342 | 50.8 | 6 | 286 | 11.6 | 6 |
| | 10 | 3 | 6 | 0 | 9 | 13.2 | 340 | 56.8 | 9 | 283 | 13.2 | 9 |
| | 11 | 2 | 3 | 0 | 5 | 7.4 | 371 | 45.1 | 5 | 291 | 8.6 | 5 |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 25 | 43 | 0 | 68 | 100.0 | 256 | 83.6 | 68 | 260 | 24.9 | 68 |

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Appendix A.18. (p. 2 of 2)

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---------------------------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| All Weeks Combined 20 May - 9 June | 2 | | | | | | | | | | | |
| | 3 | 2 | 0 | 0 | 2 | 0.3 | 98 | 5.7 | 2 | 206 | 4.9 | 2 |
| | 4 | 14 | 10 | 0 | 24 | 3.9 | 121 | 22.9 | 24 | 215 | 11.7 | 24 |
| | 5 | 27 | 21 | 0 | 48 | 7.9 | 179 | 34.4 | 48 | 238 | 12.1 | 48 |
| | 6 | 41 | 43 | 0 | 84 | 13.8 | 213 | 34.5 | 84 | 248 | 10.4 | 84 |
| | 7 | 57 | 63 | 0 | 120 | 19.7 | 260 | 37.3 | 120 | 265 | 9.3 | 120 |
| | 8 | 41 | 30 | 0 | 71 | 11.7 | 299 | 41.6 | 71 | 275 | 11.2 | 71 |
| | 9 | 69 | 48 | 0 | 117 | 19.2 | 335 | 46.6 | 117 | 283 | 9.2 | 117 |
| | 10 | 44 | 46 | 0 | 90 | 14.8 | 353 | 50.5 | 90 | 287 | 10.0 | 90 |
| | 11 | 19 | 26 | 0 | 45 | 7.4 | 373 | 53.2 | 45 | 294 | 10.6 | 45 |
| | 12 | 3 | 1 | 0 | 4 | 0.7 | 438 | 39.2 | 4 | 307 | 9.9 | 4 |
| | 13 | 2 | 0 | 0 | 2 | 0.3 | 456 | 38.2 | 2 | 301 | 4.2 | 2 |
| | 14 | 1 | 0 | 0 | 1 | 0.2 | 460 | | 1 | 302 | | 1 |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined | | 320 | 288 | 0 | 608 | 100.0 | 284 | 82.0 | 608 | 269 | 22.7 | 608 |
| Sex Composition (%) | | 52.6 | 47.4 | | | | | | | | | |
| Not Aged | | 9 | 12 | 0 | 21 | 3.5 | 281 | 93.2 | 21 | 265 | 25.1 | 21 |
| Sex Composition (%) | | 42.9 | 57.1 | | | | | | | | | |

Appendix A.19. Age, sex, and size composition of herring sampled from the variable-mesh gillnet catches, Unalakleet Subdistrict, Norton Sound District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-----------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 13 - 19 May | 2 | | | | | | | | | | | |
| | 3 | 1 | 0 | 0 | 1 | 100.0 | 62 | | 1 | 177 | | 1 |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | | | | | | | | | | | |
| | 7 | | | | | | | | | | | |
| | 8 | | | | | | | | | | | |
| | 9 | | | | | | | | | | | |
| | 10 | | | | | | | | | | | |
| | 11 | | | | | | | | | | | |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 1 | 0 | 0 | 1 | 100.0 | 62 | | 1 | 177 | | 1 |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | | | | | | | | | | | |
| | 7 | 4 | 2 | 0 | 6 | 60.0 | 305 | 53.5 | 6 | 266 | 12.4 | 6 |
| | 8 | 1 | 0 | 0 | 1 | 10.0 | 256 | | 1 | 257 | | 1 |
| | 9 | 0 | 2 | 0 | 2 | 20.0 | 330 | 19.8 | 2 | 275 | 4.2 | 2 |
| | 10 | 0 | 1 | 0 | 1 | 10.0 | 328 | | 1 | 270 | | 1 |
| | 11 | | | | | | | | | | | |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 5 | 5 | 0 | 10 | 100.0 | 307 | 45.7 | 10 | 267 | 10.7 | 10 |
| All Weeks Combined 13 - 26 May | 2 | | | | | | | | | | | |
| | 3 | 1 | 0 | 0 | 1 | 9.1 | 62 | | 1 | 177 | | 1 |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | | | | | | | | | | | |
| | 7 | 4 | 2 | 0 | 6 | 54.5 | 305 | 53.5 | 6 | 266 | 12.4 | 6 |
| | 8 | 1 | 0 | 0 | 1 | 9.1 | 256 | | 1 | 257 | | 1 |
| | 9 | 0 | 2 | 0 | 2 | 18.2 | 330 | 19.8 | 2 | 275 | 4.2 | 2 |
| | 10 | 0 | 1 | 0 | 1 | 9.1 | 328 | | 1 | 270 | | 1 |
| | 11 | | | | | | | | | | | |
| | 12 | | | | | | | | | | | |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 6 54.5 | 5 45.5 | 0 | 11 | 100.0 | 285 | 85.7 | 11 | 259 | 29.0 | 11 |
| Not Aged Sex Composition (%) | | 0 | 0 | 0 | 0 | 0.0 | 0 | | 0 | 0 | | 0 |

Appendix A.20. Age, sex, and size composition of herring sampled from the variable-mesh gillnet catches, Elim Subdistrict, Norton Sound District, 1988.

| Sample Week | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---|-----|--------------|-------------|---------|-------|------------------|----------|------|----------------|-----------|------|-----------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | | | | | | | | | | | |
| | 6 | 1 | 1 | 0 | 2 | 5.9 | 244 | 19.8 | 2 | 252 | 11.3 | 2 |
| | 7 | 1 | 2 | 0 | 3 | 8.8 | 245 | 14.5 | 3 | 262 | 4.5 | 3 |
| | 8 | 3 | 3 | 0 | 6 | 17.6 | 327 | 48.2 | 6 | 280 | 11.4 | 6 |
| | 9 | 3 | 5 | 0 | 8 | 23.5 | 314 | 32.0 | 8 | 276 | 9.1 | 8 |
| | 10 | 2 | 7 | 1 | 10 | 29.4 | 357 | 32.0 | 10 | 290 | 7.1 | 10 |
| | 11 | 2 | 2 | 0 | 4 | 11.8 | 358 | 68.1 | 4 | 289 | 12.6 | 4 |
| | 12 | 0 | 1 | 0 | 1 | 2.9 | 356 | | 1 | 290 | | 1 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 12 | 21 | 1 | 34 | 100.0 | 325 | 52.7 | 34 | 280 | 13.9 | 34 |
| 27 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 0 | 1 | 0 | 1 | 0.6 | 138 | | 1 | 220 | | 1 |
| | 5 | 3 | 3 | 0 | 6 | 3.4 | 176 | 44.8 | 6 | 234 | 14.9 | 6 |
| | 6 | 27 | 31 | 0 | 58 | 33.3 | 221 | 27.1 | 58 | 248 | 9.8 | 58 |
| | 7 | 17 | 14 | 0 | 31 | 17.8 | 264 | 50.2 | 31 | 260 | 12.2 | 31 |
| | 8 | 11 | 3 | 0 | 14 | 8.0 | 288 | 34.9 | 14 | 268 | 10.2 | 14 |
| | 9 | 20 | 15 | 0 | 35 | 20.1 | 338 | 40.3 | 35 | 279 | 9.1 | 35 |
| | 10 | 6 | 11 | 0 | 17 | 9.8 | 356 | 39.5 | 17 | 280 | 9.2 | 17 |
| | 11 | 5 | 6 | 0 | 11 | 6.3 | 339 | 34.0 | 11 | 280 | 7.0 | 11 |
| | 12 | 1 | 0 | 0 | 1 | 0.6 | 332 | | 1 | 281 | | 1 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 90 | 84 | 0 | 174 | 100.0 | 277 | 67.5 | 174 | 263 | 17.7 | 174 |
| All Weeks Combined 20 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 0 | 1 | 0 | 1 | 0.5 | 138 | | 1 | 220 | | 1 |
| | 5 | 3 | 3 | 0 | 6 | 2.9 | 176 | 44.8 | 6 | 234 | 14.9 | 6 |
| | 6 | 28 | 32 | 0 | 60 | 28.8 | 221 | 27.1 | 60 | 249 | 9.8 | 60 |
| | 7 | 18 | 16 | 0 | 34 | 16.3 | 262 | 48.3 | 34 | 260 | 11.7 | 34 |
| | 8 | 14 | 6 | 0 | 20 | 9.6 | 300 | 42.3 | 20 | 271 | 11.7 | 20 |
| | 9 | 23 | 20 | 0 | 43 | 20.7 | 333 | 39.7 | 43 | 278 | 9.1 | 43 |
| | 10 | 8 | 18 | 1 | 27 | 13.0 | 356 | 36.3 | 27 | 283 | 9.8 | 27 |
| | 11 | 7 | 8 | 0 | 15 | 7.2 | 344 | 43.5 | 15 | 283 | 9.2 | 15 |
| | 12 | 1 | 1 | 0 | 2 | 1.0 | 344 | 17.0 | 2 | 286 | 6.4 | 2 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| All Samples Combined Sex Composition (%) | | 102 49.3 | 105 50.7 | 1 | 208 | 100.0 | 285 | 67.6 | 208 | 266 | 18.2 | 208 |
| Not Aged Sex Composition (%) | | 22 78.6 | 6 21.4 | 0 | 28 | 13.5 | 269 | 55.5 | 28 | 265 | 20.3 | 28 |

Appendix A.21. Age, sex, and size composition of herring sampled from the variable-mesh gillnet catches, Cape Denbigh Subdistrict, Norton Sound District, 1988.

| Sample Weeks | Age | Sex (number) | | | | Percent of Total | Weight | | | Length | | |
|---------------------------------------|-----|--------------|--------|---------|-------|------------------------|-------------|------|-------------------|--------------|------|--------------------|
| | | Male | Female | Unknown | Total | | Mean (g) | SD | Number Weighed | Mean (mm) | SD | Number Measured |
| 20 - 26 May | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | | | | | | | | | | | |
| | 5 | 1 | 0 | 0 | 1 | 0.4 | 210 | | 1 | 248 | | 1 |
| | 6 | 22 | 14 | 0 | 36 | 14.9 | 226 | 21.0 | 36 | 249 | 6.9 | 36 |
| | 7 | 27 | 13 | 0 | 40 | 16.6 | 262 | 33.6 | 40 | 260 | 9.5 | 40 |
| | 8 | 19 | 7 | 0 | 26 | 10.8 | 300 | 42.4 | 26 | 272 | 9.3 | 26 |
| | 9 | 55 | 25 | 0 | 80 | 33.2 | 333 | 41.5 | 80 | 279 | 8.8 | 80 |
| | 10 | 23 | 21 | 0 | 44 | 18.3 | 352 | 38.3 | 44 | 282 | 8.8 | 44 |
| | 11 | 4 | 8 | 0 | 12 | 5.0 | 376 | 56.3 | 12 | 289 | 12.3 | 12 |
| | 12 | 2 | 0 | 0 | 2 | 0.8 | 410 | 79.2 | 2 | 305 | 14.1 | 2 |
| | 13 | | | | | | | | | | | |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 153 | 88 | 0 | 241 | 100.0 | 307 | 61.0 | 241 | 272 | 15.7 | 241 |
| 27 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 2 | 1 | 0 | 3 | 1.4 | 116 | 3.5 | 3 | 220 | 2.6 | 3 |
| | 5 | 10 | 4 | 0 | 14 | 6.7 | 167 | 37.9 | 14 | 232 | 13.4 | 14 |
| | 6 | 28 | 22 | 0 | 50 | 24.0 | 198 | 28.6 | 50 | 245 | 9.5 | 50 |
| | 7 | 23 | 17 | 1 | 41 | 19.7 | 235 | 36.0 | 41 | 258 | 11.6 | 41 |
| | 8 | 13 | 14 | 0 | 27 | 13.0 | 262 | 27.2 | 27 | 269 | 7.8 | 27 |
| | 9 | 15 | 27 | 0 | 42 | 20.2 | 292 | 37.0 | 42 | 277 | 9.7 | 42 |
| | 10 | 12 | 9 | 0 | 21 | 10.1 | 306 | 49.9 | 21 | 282 | 11.4 | 20 |
| | 11 | 6 | 2 | 0 | 8 | 3.8 | 298 | 31.2 | 8 | 282 | 7.3 | 8 |
| | 12 | 0 | 1 | 0 | 1 | 0.5 | 366 | | 1 | 292 | | 1 |
| | 13 | 1 | 0 | 0 | 1 | 0.5 | 372 | | 1 | 297 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| Sample Total | | 110 | 97 | 1 | 208 | 100.0 | 246 | 59.3 | 208 | 261 | 19.5 | 207 |
| All Weeks Combined 20 May - 2 June | 2 | | | | | | | | | | | |
| | 3 | | | | | | | | | | | |
| | 4 | 2 | 1 | 0 | 3 | 0.7 | 116 | 3.5 | 3 | 220 | 2.6 | 3 |
| | 5 | 11 | 4 | 0 | 15 | 3.3 | 170 | 38.2 | 15 | 233 | 13.6 | 15 |
| | 6 | 50 | 36 | 0 | 86 | 19.2 | 210 | 29.2 | 86 | 246 | 8.7 | 86 |
| | 7 | 50 | 30 | 1 | 81 | 18.0 | 248 | 37.2 | 81 | 259 | 10.6 | 81 |
| | 8 | 32 | 21 | 0 | 53 | 11.8 | 281 | 39.8 | 53 | 270 | 8.5 | 53 |
| | 9 | 70 | 52 | 0 | 122 | 27.2 | 319 | 44.4 | 122 | 278 | 9.1 | 122 |
| | 10 | 35 | 30 | 0 | 65 | 14.5 | 337 | 47.2 | 65 | 282 | 9.6 | 64 |
| | 11 | 10 | 10 | 0 | 20 | 4.5 | 345 | 60.8 | 20 | 286 | 10.9 | 20 |
| | 12 | 2 | 1 | 0 | 3 | 0.7 | 395 | 61.5 | 3 | 301 | 12.5 | 3 |
| | 13 | 1 | 0 | 0 | 1 | 0.2 | 372 | | 1 | 297 | | 1 |
| | 14 | | | | | | | | | | | |
| | 15 | | | | | | | | | | | |
| | 16 | | | | | | | | | | | |
| | 17 | | | | | | | | | | | |
| All Samples Combined | | 263 | 185 | 1 | 449 | 100.0 | 279 | 67.5 | 449 | 267 | 18.2 | 448 |
| Sex Composition (%) | | 58.7 | 41.3 | | | | | | | | | |
| Not Aged | | 2 | 2 | 0 | 4 | 0.9 | 266 | 52.5 | 4 | 267 | 12.5 | 4 |
| Sex Composition (%) | | 50.0 | 50.0 | | | | | | | | | |

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